Program Assessment and Strategy for Enhancement

Performed Pursuant to Section 309 of the Coastal Zone Management Act of 1972 As Amended

Prepared by the

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The Rhode Island
Coastal Resources Management Council
Assessment and Strategy for Program Enhancement

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INTRODUCTION

This is the fourth Assessment and Strategy that the Rhode Island Coastal Resources Management Council (CRMC) has submitted under §309 of the federal Coastal Zone Management Act. Five previous assessments were prepared. As in previous assessments, this one is directed at the nine §309 enhancement areas delineated by the Congress. Each is discussed in a separate chapter using a template provided by the National Oceanic and Atmospheric Administration (NOAA).

Prior to the previous section 309 assessment and strategy report in 2001, the CRMC had successfully utilized the section 309 enhancements grants program to strengthen the Rhode Island Coastal Resources Management Program (RICRMP) in four specific issue areas: wetlands, coastal hazard areas, special area management planning, and cumulative and secondary impacts. Since that time, aquaculture and freshwater wetlands in the vicinity of the coast program have been added to the list of enhancements to the RICRMP through the section 309 program. The CRMC has also realized further special area management plan (SAMP) improvements through the completion and adoption of the Greenwich Bay Special Area Management Plan as well as the revisions to the Providence Harbor: Special Area Management Plan, renamed the Metro Bay Special Area Management Plan. Recently, a Coastal Policy Analyst has been hired to oversee and implement the Special Area Management Plans adopted by the CRMC. These significant SAMP improvements were based on new cumulative and secondary impacts data, which justified the SAMP's increased resource protection measures in critical coastal watershed areas.

In addition, a long-standing interest among state and federal agencies, academic institutions, non-profit organizations, and individual citizens, finally resulted in a major effort to develop a Rhode Island coastal habitat restoration program. The protection and restoration of coastal wetlands has emerged as a leading goal of this new initiative. In addition, as the lead state agency for coastal habitat protection, the CRMC has a leading role as a member of the Rhode Island Habitat Restoration team. The decision to dedicate regular staff time to this effort supports the CRMC's view that wetlands are also a high priority area for enhancement. CRMC implements a legislatively mandated Trust Fund in the amount of $250,000 specifically earmarked for the restoration of coastal and estuarine habitats.

This document combines the section 309 Assessment and Strategy requirements into a single document. It contains an assessment of the RICRMP for each of the nine areas contained in section 309 and the Council's strategy for enhancing the RICRMP in the five areas identified as high priority (tidal wetlands, cumulative and secondary impacts, special area management planning, coastal hazards, and energy and government facility siting). These priority areas are a result of a survey administered by CRMC and sent out to state and nonprofit agencies; municipalities; academia; and CRMC staff. Of the thirty surveys distributed, sixteen responses were received by CRMC. (See Appendix A).

Due to the limited resources available under the section 309 program, and considerable tasks proposed for high priority areas, this document does not include a strategy for those areas identified as medium and low priority (ocean resources, energy and government facility siting, aquaculture, marine debris, and public access). The strategy for program enhancement immediately follows the Assessment in each of the areas identified as high priority.

SUMMARY OF PAST 309 EFFORTS

The CRMC's previous section 309 assessment identified four priority areas for enhancement of the Rhode Island Coastal Resources Management Program:

1. Aquaculture
2. Ocean Resources
3. Wetlands
4. Special Area Management Planning

Aquaculture

Aquaculture was identified as a high priority for enhancement in the previous section 309 assessment as much for the potential it represented for food production, jobs, and other social and economic benefits, as it was for the serious obstacles that threatened to impede its progress. Evidence of the potential for economic benefits from the aquaculture industry was reflected by the formation of a Special Commission on Aquaculture by the Rhode Island General Assembly. But the realization of any such benefits from aquaculture, to either individual operators, corporate interests, or the state, through tax revenues, were effectively curtailed by multiple user conflicts.

The Rhode Island Aquaculture Initiative, established in 2002, continues to provide an investment in the future growth of the industry in Rhode Island. Competitions for research grants and mini-grants for growers were held with the best grants receiving funding. Two aquaculture extension positions that were funded in partnership with Roger Williams University and the University of Rhode Island provide very real benefits to the industry and to prospective participants. This initiative has been successful in helping the industry build infrastructure for continued growth. Research at the universities continued to be an important part of aquaculture in Rhode Island. Excluding the money from the Rhode Island Aquaculture Initiative, the universities bring in outside grants and tuition for students studying aquaculture related subjects.

2002

The year 2002 was a good year for the Aquaculture industry in Rhode Island. The value of product harvested increased by almost 60% from the previous year. The American oyster was the predominate species of shellfish grown accounting for 87% of the total harvest. The hard clam being the only other species cultivated in any numbers making up 13% of the total harvest. Oysters harvested increased 67% from the previous year, clams saw an increase of 13% harvested as compared to 2001. For the fourth year in a row 100% of all Rhode Island grown aquaculture products were shellfish. The number of farms under lease remained the same, after two farms were abandoned, two farms changed hands, and two new farms were permitted. The acreage under lease increased slightly with these changes.

The Rhode Island Aquaculture Initiative was funded during 2002. CRMC reached

an agreement with the Rhode Island Sea Grant, Roger Williams University and the University of Rhode Island to manage the initiative for CRMC. During the year competitions for research grants and mini-grants for growers were held with the best grants receiving funding. Two aquaculture extension positions were funded in partnership with Roger Williams University and the University of Rhode Island. Additionally a number of projects that had been initiated in previous years were awarded continuing funds.

Research at the universities continued to be an important part of aquaculture in Rhode Island. Not including the money from the Rhode Island Aquaculture Initiative, the universities brought in more than $2 million dollars in outside grants, and tuition for students studying aquaculture related subjects.

The year also saw the first truly all New England wide aquaculture conference held in Rhode Island. The Northeast Aquaculture Conference and Expo was held in Warwick, and included a special Symposium on Urban Aquaculture. More than 200 people came from all of New England and New York to learn about the latest in growing technology, science, regulatory issues and to shop for the latest aquaculture in aquaculture equipment in the expo.

2003:

- The 2003 farm gate value of Rhode Island raised aquaculture products rose 16%.
- This is the 7th double-digit increase in the past 8 years.
- The number of farms in Rhode Island increased by two to 20.
- The total acreage under cultivation in Rhode Island rose to 61 acres.
- Aquaculture related industries in Rhode Island had gross revenue of $5.5 million dollars during the calendar year 2003. This was a 28% increase from 2002.
- The total contribution of aquaculture to the economic bottom line of the State of Rhode Island was $6 million dollars.
- Regulatory agencies charged with responsibility for aquaculture continued to make progress in streamlining the permitting process.
- Regulatory agencies continued to involve stakeholders in the planning and regulation of aquaculture during the year 2003.
- The East Coast Shellfish Grower's Association was formed.
- The Rhode Island Aquaculture Initiative continued to make investments for the future of RI aquaculture.

2004:

- The 2004 farm gate value of Rhode Island raised aquaculture products rose 1.6%.
- This is the 8th increase in the past 9 years.
- The number of farms in Rhode Island increased by two to 22.
- The total acreage under cultivation in Rhode Island rose to 70 acres.
- Aquaculture related industries in Rhode Island had gross revenue of $5.5 million dollars during the calendar year 2004.
- The total contribution of aquaculture to the economic bottom line of the State of

Rhode Island was $6 million dollars.

- Regulatory agencies charged with responsibility for aquaculture continued to make progress in streamlining the permitting process.
- Regulatory agencies continued to involve stakeholders in the planning and regulation of aquaculture during the year 2004.
- The Rhode Island Aquaculture Initiative continued to make investments for the future of RI aquaculture.

2005

- The 2005 farmgate value of Rhode Island raised aquaculture products rose 29.9% the ninth increase in the past 10 years.
- The number of farms in Rhode Island increased by three to 25.
- The total acreage under cultivation in Rhode Island grew to 85 acres.
- For the first time in six years there is a fin fish proposal under consideration.
- Aquaculture-related industries in Rhode Island had a gross revenue of $3.5 million dollars during the 2005 calendar year.
- Rhode Island's regulatory agencies charged with responsibility for aquaculture continued to make progress in streamlining the permitting process.
- The state's regulatory agencies continued to involve stakeholders in the planning and regulation of aquaculture in 2005.
- The Rhode Island Aquaculture Initiative continued to make investments for the future of RI aquaculture.

Ocean Resources

A dredge disposal plan for Rhode Island's marinas was an identified need in the CRMC's previous two assessments. Dredging problems identified in the previous assessments have continued to worsen and dredging is now among the most significant environmental, economic, and political concerns in the state. Rhode Island still lacks a dredge disposal plan; however, CRMC is working in support of such a plan. Hazardous navigational conditions due to shallow depths and silting of channels represent a significant threat to the Rhode Island coast and economy. Recreational boaters and marina operators are expressing increasing concern about the inability to maintain marina and channel depths due to the lack of a designated dredge material disposal site. Since the last 309 Assessment, the CRMC has led the state effort to coordinate the Army Corps of Engineers' (ACOE) responsibilities in dredging the Providence River Shipping Channel.

To date, the ACOE has assessed the quantity and quality of the dredged material that would need to be disposed from the shipping channel. Combined with the figures of associated dredge projects, the condition surveys of the channel revealed that a total of between four and one-half million to five million cubic yards need to be dredged and disposed. Approximately 1.5 million cubic yards of this total have been determined by the ACOE to be not suitable for open water disposal. Again, the CRMC led the state effort to coordinate with the ACOE in these investigations. Coordination with the

Section 204 program (beneficial uses of dredge material) was also integral to the ACOE's EIS process. This work was completed and presented to the State by the ACOE as a Final EIS in 2001 and has completed the dredging and disposal of dredge materials from the shipping channel in 2004.

The CRMC now has the following additional duties and responsibilities:

- Coordinate the interests of the state with regard to tidal water dredging;
- Formulate and adopt a state policy with regard to dredging which integrates those interests;
- Cooperate with, negotiate, and enter into agreements on behalf of the state with the federal government and with other public bodies and private bodies with regard to dredging;
- Act as the initial and primary point of contact for all applications to the state for dredging projects in tidal waters;
- Develop, prepare, adopt, implement, and maintain a comprehensive plan for dredged material management;
- Cooperate and coordinate with the departments of Environmental Management, Transportation, Administration, and Health, and the Economic Development Corporation, in the conduct of these duties and responsibilities;
- Create a Technical Advisory Committee on Dredging;
- Identify and establish one (1) or more in-water disposal site(s) to be used for the purpose of the disposal of dredged materials from marinas and yacht clubs by January 1, 1997; and
- Identify and establish one (1) or more in-water disposal site(s) to be used for the purpose of the disposal of dredged materials from all sources by January 1, 1998.

The CRMC still pursues state funding to develop a comprehensive dredged material management plan but until it receives such, will continue to advance the support of dredging and dredged material management for the state.

The CRMC, as the designated lead state agency for dredging, has been working toward meeting the mandates of the Act since its adoption and, thus far, has established and held numerous meetings with the Coastal Resources Advisory Committee (CRAC: formerly the Technical Advisory Committee[1]), and has identified potential sites for in-water disposal of dredged materials from marinas and yacht clubs. However, substantial work lies ahead for the CRMC in meeting the remaining mandates of the Act, not the least of which is the development of a long-term dredged material management plan for the State.

[1]The make-up of the Advisory Group is legislatively mandated. It consists of a representative from the University of Rhode Island's Graduate School of Oceanography; the Environmental Protection Agency's Narragansett Laboratory; the Army Corps of Engineers; the National Sea Grant Program; the Coastal Resources Management Council; the Rhode Island Marine Trades Association; and, Save The Bay as well as the Director of the Department of Environmental Management.

Wetlands

The CRMC's previous section 309 assessment/strategy identified wetlands as a priority enhancement area.

Legislation passed in July of 2003 which created a Coastal and Estuarine Habitat Restoration Program and Trust Fund restricted solely to fund habitat restoration projects by amending OSPAR. Under the change, the trust fund would receive a legislative appropriation in FY 03 of $250,000 of the monies generated through the 5-cent tax. The fund is also eligible to accept private donations and federal matching grants.

The money has been made available through a competitive grant application process for projects aimed at improving coastal habitats. These projects have been submitted to an advisory committee charged with evaluating them under a newly developed Statewide Coastal and Estuarine Habitat Restoration Plan and have, in turn, been prioritized to receive funding. The advisory committee, comprised of public, agency, legislative and stakeholder participation, developed a Coastal Resources Management Council (CRMC) approved plan that incorporates the following elements: a description of the state's coastal and estuarine habitats, restoration goals, inventory of restoration projects, projected comprehensive budget and timeline to complete the goals, funding sources, an outreach element, and provisions for updating the plan and project inventory. Members of the Technical Advisory Committee (TAC) are representative of the following agencies, organizations, and institutions: the University of Rhode Island's Graduate School of Oceanography, the Department of Environmental Management's Office of Sustainable Watersheds, Narragansett Bay Estuary Program, Environmental Protection Agency Region 1, NOAA's Fisheries Restoration Center, DEM Fish and Wildlife, US Fish and Wildlife, Save The Bay, USDA Natural Resources Conservation Service, DEM Mosquito Abatement, and Coastal Resources Management Council (Chair).

According to the plan, habitat restoration grant monies are dispersed in accordance with §46-23.1-5(2) which allocates funding for design, planning, construction or monitoring. Eligible applicants include cities and towns; any committee, board, or commission chartered by a city or town; nonprofit corporations; civic groups; educational institutions; and state agencies.

The program, under the direction of the Executive Director of the CRMC, was introduced again in FY2004 to the General Assembly for a budget request for program costs. Legislation was amended (and approved) to fund the program in perpetuity in the amount of $250,000 per year. Thus far, twenty-four projects have been funded through this program, leveraging approximately nine million dollars in federal funds.

Allin's Cove Wetlands Restoration Project

With the exception of monitoring and maintenance of Allin's Cove, the project has

successfully been completed. CRMC, the lead nonfederal sponsor of the project, worked with the Army Corps of Engineers to complete the restoration.

The disposal of dredge material in Allin's Cove in 1959 raised the wetland surface that, in turn, changed the salt marsh to a brackish marsh dominated by common reed grass (Phragmites australis). Phragmites is an invasive species that is not suitable wildlife habitat. Salt marsh habitat restoration at Allin's Cove will have great ecological benefits. The project has restored 3.6 acres of salt marsh and protected the existing salt marsh along the western edge of the cove. The project will also prevent erosion of Byway Road due to the relocation the tidal inlet to the cove to the approximate 1939 inlet location. In addition, new beach strand habitat has been created on both sides of the new inlet.

South Coast Habitat Restoration Project

Dredging took place within Ninigret Pond, the first of three ponds to be dredged under the project agreement with the Army Corps of Engineers. CRMC and the Army Corps have been working together on the South Coast Habitat Restoration Project since 1997. One part of the project will restore 40 acres of eelgrass habitat to Ninigret Pond by dredging the flood tidal shoals in the pond to an optimum depth for eelgrass growth. Eelgrass provides a habitat that is essential for the lifecycles of several important fish species. It also contributes to the health and productivity of the coastal ecosystem by filtering harmful nutrients and contributing to the food web.

The sand from the dredged areas has been used to replenish the nearby beaches. These beaches are eroding. Sand that was transported into Ninigret Pond through the Charlestown Breachway will be returned to the shoreline. This will provide more protection to the houses along the shoreline in the event of a severe storm.

The project will be maintained by excavating a sediment basin in the Charlestown Breachway. Sand will be captured in the basin instead of entering the pond. This will ensure that the restored eelgrass beds are not reburied. The state will maintain the sediment basin by periodic dredging and pumping the sand back to the beaches.

Narrow River Aquatic Restoration Project

The Corps of Engineers is conducting a Feasibility Study to evaluate restoration opportunities on the Narrow River. The Narrow River is approximately seven miles long with a watershed covering approximately 9,000 acres. The lower Narrow River is a tidal estuary, connected to Narragansett Bay. The objective of this project is to restore aquatic habitats (e.g. eelgrass, shellfish beds, salt marshes, and waterfowl habitats) that have been degraded by eutrophication, poor flushing, changes in bottom types and erosion.

The Narrow River Special Area Management Plan prepared by the RI Coastal Resources Management Council describes Narrow River as constricted and poorly flushed. The tide range decreases from 3.5 feet at the river mouth to 1.4 feet at the Sprague Bridge only about ¾ mile upstream. It takes over 77 days to flush the upper pond near the upstream end of tidal influence. The muted tide range reduces flushing and

contributes to the accumulation of nutrients. Restricted flushing and sedimentation in the inlet may affect the quality and abundance of habitats and diversity of species in the Narrow River. Installation of sewers throughout the watershed has reduced the input of nutrients in recent years enhancing the potential to successfully restore habitats. Improving the hydrodynamic conditions, reducing sedimentation, and restoring appropriate bottom conditions is expected to restore the quality of eelgrass, shellfish, salt marsh, and other habitats in Narrow River.

Shoaling in the lower Narrow River and high nutrient concentrations may be contributing to a decline in submerged aquatic vegetation - primarily eelgrass (*Zostera marina*) - and shellfish habitat in the river and its coves. Eelgrass beds and other submerged aquatic vegetation provide valuable spawning, nursery, cover, and foraging habitat for aquatic and semi-aquatic animals. Excessive sediment accumulation can displace eelgrass with lower quality habitats and elevated nutrient concentrations may adversely affect eelgrass plants by stimulating algal competitors, which limit light transmission. The many stresses in the system also appear be leading to the loss of salt marsh.

CRMC and the Army Corps are working with other agencies and organizations to identify appropriate restoration measures and alternatives. The alternatives to be investigated include: methods to reduce sediment accumulation (e.g. sedimentation basins near the inlet); dredging and redistributing sediment to restore flushing and appropriate substrates for eelgrass, shellfish, and salt marshes; reducing ongoing erosion of salt marshes; and restoring buffer zones. Dredged sand may be placed in the intertidal zone off Narragansett Beach to allow the sand to remain in the littoral system.

Special Area Management Planning

As a function of its ongoing effort to implement significant revisions to both the Salt Pond Region and Narrow River SAMPs, the CRMC had considered SAMP planning to be a high priority at the time of the previous Section 309 assessment. The major change in CRMC's SAMP planning since that time was the promulgation and adoption of the Greenwich Bay SAMP.

The Council adopted the Greenwich Bay SAMP on May 10, 2005. This adoption was the result of a three year cooperative agreement between the University of Rhode Island's Coastal Resources Center and CRMC. In addition, a similar cooperative agreement is in place for revising the Providence River SAMP, now known as the Metro Bay SAMP.

While the 1999 revisions to the Salt Pond Region and Narrow River SAMPs represent a major achievement for CRMC, past improvements to CRMC's other SAMPs deserve mention. For example, amendments that improved the implementation of various regulations, were incorporated in both the Providence Harbor and Pawcatuck River Estuary SAMPs after their initial promulgation. In addition, a section that explains the standards, scope and regulatory implications of CRMC's SAMPs was also added.

WETLANDS ASSESSMENT

Section 309 Programmatic Objectives

(See Attachments B and C for more detailed discussion)

I. Protect and preserve existing levels of wetlands, as measured by acreage and functions, from direct, indirect and cumulative adverse impacts, by developing or improving regulatory programs.

II. Increase acres and associated functions (e.g., fish and wildlife habitat, water quality protection, flood protection) of restored wetlands, including restoration and monitoring of habitat for threatened and endangered species.

III. Utilize non-regulatory and innovative techniques to provide for the protection, restoration, and acquisition of coastal wetlands.

IV. Develop and improve wetlands creation programs.

Resource Characterization

1. Extent of coastal wetlands

Wetlands Type	Extent of Wetlands (Acres and year of data	Trends (loss or gain of wetlands /year)
Tidal	15, 834 [2]	unknown
Freshwater/Non Tidal	112,000 acres of freshwater wetlands Statewide [3]	unknown
Publicly Acquired Wetlands	Unknown	Unknown
Restored Wetlands	194.9[4]	Unknown
Created Wetlands	none	unknown

2. If information is not available to fill in the above table,

   a) provide a qualitative description of wetlands status and trends based on the best available information.

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[2] 15,834 acres comes from RIDEM, *2002 State of the Waters Report*, and include: 7.4 acres of Riverine Tidal Open Water wetlands, 8,175 acres of Estuarine Open Water wetlands; 4,014 acres of Estuarine Emergent Wetland; 93 acres of Estuarine Scrub-Shrub Wetland; 671 acres of Marine/Estuarine Rocky Shore wetlands; and 2,874 acres of Marine/Estuarine Unconsolidated Shore wetlands.

[3] RIDEM, *Status and Trends of Freshwater Wetlands*, 1999 (based on palustrine, lacustrine and riverine wetland acreage).

[4] Number of acres restored is a reflection of the number of salt marsh acres restored with funding from CRMC's Coastal and Estuary Habitat Restoration Program and Trust Fund

b) identify any ongoing or planned efforts to develop quantitative measures for this issue area.

c) Provide explanation for trends.

The coastal habitats of Rhode Island include salt marshes, seagrass beds, and riverine systems. These habitats provide significant fish and wildlife resources which contribute greatly to the state's ecological diversity, and to the economy: $75 million in commercial fishery landings; a recreational fishery valued at $150 million, and a tourism and recreation industry valued at $2 billion on Narragansett Bay alone. Seventy-five percent of commercial fish species depend on estuaries for their primary habitat, spawning grounds, and nursery areas. The sweeping vistas afforded by the low lying salt marsh landscape contribute immeasurably to the beauty and serenity of Rhode Island's coastline, as well as our tourism and outdoor recreation industry.

Since the adoption of the Rhode Island Coastal Resources Management Program (RICRMP) in 1976, the CRMC has protected all coastal wetlands, regardless of size. Any filling or alteration is strictly prohibited in approximately 90% of the state's remaining salt marshes (those abutting Types 1 and 2 waters, and Types 3,4,5 & 6 waters which have been designated for preservation) (RICRMP, Section 210.3). And activities within 200 feet of coastal wetlands are also regulated.

Freshwater Wetlands Within the Vicinity of the Coast

CRMC's Jurisdiction

Definitions and classifications of freshwater wetlands and CRMC jurisdiction will remain the same under the Council's program, but a passage on tributary wetlands was added to the existing regulations. It reads as follows:

> Tributary wetlands are freshwater wetlands that are connected via a watercourse to a coastal wetland and/or tidal waters. A tributary is any flowing body of water or watercourse which provides intermittent or perennial flow to tidal waters, coastal ponds, coastal wetlands or other down-gradient watercourses which eventually or immediately discharge to tidal waters, coastal ponds or coastal wetlands.

The new regulations outline the intrinsic value of freshwater wetlands – wildlife and wildlife habitat, recreation and aesthetics, flood protection, recharge or discharge for surface water or groundwater and water quality – and stress that those functions and values further the goals and objectives of the CRMC's management programs for the protection and management of coastal resources.

Strong language was added prohibiting the alteration, filling, removal or grading or any tributary or tributary wetland that is associated with a coastal wetland or open

water system. The regulations state that precise boundaries of these areas will be determined through field inspection when proposals that could impact these systems are being considered.

There is now a section outlining specific situations where the Council might permit the filling, removal or grading of a tributary or tributary wetland, including the 50 foot wetland perimeter and river bank wetland areas outside the wetland "edge," which would not be considered part of the wetland; and where filling is required to access otherwise buildable land when no other reasonable alternatives for access exist. In these cases, applicants will be subject to a number of requirements:

- The applicant will be required to mitigate the area of wetland lost on a 1 to 2 area basis;
- The wetland that is replaced shall be consistent with that which was filled;
- The mitigation, when feasible, shall take place on-site and/or in an area hydrologically connected to the impacted wetland. When not feasible, the Council will consider other viable alternatives, including increasing mitigation ratios;
- Setback and buffer requirements shall be required for the wetland replacement area;
- Enhancement of existing wetland shall not be an acceptable form of mitigation under this section;
- When applicable, all wetland replacement projects will require approval of the RI Department of Environmental Management, Division of Freshwater Wetlands; and
- When applicable, the applicant shall concurrently submit applications to the DEM and CRMC so that a concurrent review of the proposed activities can occur.

The new regulations also stipulate that filling of wetlands for priority uses (such as marina expansions, for which the Council allows filling of fringe marsh and requires a restoration ratio of 2 to 1) is exempt from this prohibition.

Deparment of Environmental Management's Jurisdiction

In 2006, the DEM will complete revisions to the Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act. The proposed changes, while primarily structural will include some procedural revisions as well. The goals for the proposed structural revisions are improved clarity and organization and to make the rules more transparent to all users. The draft Rules emphasize the importance of wetland functions and values right up front in the findings section; include an 'umbrella rule' that describes the prohibitions and the approvals that are available; introduces a rule with requirements that relate to all applications, including site plan requirements and field requirements; simplifies the fees by eliminating the square foot additives; and introduces rules for each of the major application types, with specific requirements and review criteria. The draft Rules also propose new exemptions

for clearing at airport safety zones, for planting projects, and for dam safety projects. The current draft is substantially changed from the draft that was considered in 2004. The comments that were received both internally and from stakeholders have been carefully considered. DEM is presently requesting input to refine the new draft prior to initiating the customary public process for rule adoption beginning in August 2006.

3. Direct and indirect threats to coastal wetlands, both natural and man-made

Threat	**Scope**	**Trends**	**Impediments**
Development / fill	Widespread	Increasing	Addressed through regulatory process
Alteration of hydrology	Widespread	Increasing	Individual impacts small and hard to track
Erosion	Minimal	None	
Pollution	Unknown	Unknown	Wetland water quality or health not monitored
Channelization	Minimal	None	
Nuisance / exotic species	Widespread	Increasing	Development causes fragmentation; introduces invasives such as *Phragmites australis*
Freshwater input	Widespread	Increasing	Stormwater runoff directed into wetlands and coastal ponds
Sea/lake level rise	widespread	Small long term	

Development/fill

Historically, roads, dredge and fill operations, residential and commercial development, and sedimentation from overland runoff and vegetation removal are some of the major causes of wetland loss and degradation. Downtown Providence, Newport, the Navy facility at Quonset Point, and many other low lying coastal communities in Rhode Island are built on what was once coastal wetland. By the mid-1980s, Rhode Island had lost approximately 37% of its estimated original wetlands (both tidal freshwater and saltmarsh). Some reports of wetland and coastal habitat losses have been

as high as 50 percent of colonial inventories. These saltmarsh losses were largely due to mosquito ditching, dredge material fill, fill for development, roadway development and dikes. There are also more than 500 dams in the state, affecting all of our major river systems; and seagrass losses to the estuaries have been dramatic: there are less than 100 acres of seagrass beds in Narragansett Bay, the coastal ponds have seen reductions up to 41% over thirty years and water quality conditions are not adequate to support eelgrass resources in many coves and embayments. According to a 1975 survey, there are 3,700 acres of salt marsh in the state, of which 10% were fringe marshes less than five yards wide

It is estimated that 60% of Rhode Island's salt marshes have been filled with mud and sand dredged during navigation projects or waste material derived from upland sources (Save The Bay 2002).

Alteration of Hydrology

Construction of dikes, roads and rail crossings has resulted in the degradation of many marshes in Rhode Island. Restriction of tidal flow by installation of small culverts or drainage pipes under roads and rail beds leads to changes in salinity and alteration of the natural vegetation community due to a reduction in duration and frequency of tidal flooding. *Phragmites*, which is tolerant of these altered conditions, especially reduced salinity, often invades rapidly in areas that have been culverted or diked. *Phragmites* out-competes native salt marsh vegetation, and reduces local biodiversity. Some 1200 of the existing 3700 acres of salt marsh in Narragansett Bay are impacted by *Phragmites* and other invasive plant species (Save The Bay 2002)

Fish communities of salt marshes also suffer from road/rail infrastructure, as they rely on the natural tidal cycle to maintain populations in salt marshes. Marsh resident fish species, such as killifish (*Fundulus* spp.) spawn in concert with the tidal cycle, timing their spawning activity to coincide with the highest Spring tides, due ensure deposition of eggs in the highest portion of the marsh (Taylor et. al. 1979). When natural tidal cycles are interrupted, or reduced, killifish spawning success is impaired. Tidal restrictions can reduce the amount of habitat available for estuarine-dependent fish that travel up into tidal creeks in search of food.

Mosquito ditching has impacted many marshes in Rhode Island. Mosquito ditches are very straight, narrow channels that were dug to drain the upper reaches of salt marshes. Historically, it was believed that ditching marshes would control populations of mosquitoes that breed there. It is now known that ditching, in fact, drains standing water which support populations of mosquito-eating fish (*e.g.*, killifish), leading to increases in mosquitoes. These fish are an important prey item for wading birds (herons and egrets), as well as larger, predatory fish species. Mosquito ditching alters natural patterns of groundwater drainage, which alters plant community composition, and nutrient cycling. The Department of Environmental Management's Mosquito Abatement Coordinator has the equipment available to improve salt marshes in order to prevent the future breeding of mosquitoes. A number of salt marshes throughout the state have benefited from such activity.

Pollution and Nuisance or exotic species

Polluted runoff from adjacent uplands has degraded salt marshes. Runoff from roads and other paved surfaces, and nutrient-rich runoff from fertilized lawns, agricultural areas, and septic systems has degraded marshes by encouraging growth of *Phragmites* and other invasive species. Forested buffer zones between populated areas and salt marshes have diminished as population growth in coastal areas increases. Approximately 58% of Narragansett Bay's marshes are impacted by polluted runoff. Some 30% of the Bay's marshes have inadequate or non-existent buffer zones (Save The Bay, 2002).

With respect to freshwater wetlands, the overall decrease over time in Rhode Island is difficult to assess since no comprehensive analysis has been performed. Losses have probably been heaviest along the flood plains of the state's major river systems, as these areas served as the corridors of expansion from the coastal urban settlements (RIDEM 305 (b) Report, 1992).

Priority use development impacts, such as marinas, are permitted in areas that affect fringe marsh, although mitigation under Section 300.12 of the CRMP is required. The following ratios of replacement coastal wetland to permanently altered or lost coastal

Category	Significance of change	Actual change

wetland shall be considered minimum compensation requirements for such mitigation projects:

i. 2:1, area of coastal wetland restored: area permanently altered or lost.
ii. 2:1, area of coastal wetland created: area permanently lost or altered.

The database is not sophisticated enough for tracking permit data showing permitted impacts to tidal wetlands. However, tracking of such is one of the recognized areas of improvement to the database. CRMC is currently working with DEM in accordance with the freshwater wetlands in the vicinity of the coast program to address statistically any wetlands impacts to permits. In this instance, the database does have the ability to look at freshwater wetlands statistically.

The priority threats to coastal wetlands include development along the coast, fill, sudden marsh dieback (a recently identified phenomenon), tidal restrictions, and the introduction of invasive species. In order to address and rectify the identified priority threats, more (and better) data is needed. The data could be used to generate a restoration plan for improving/restoring the marshes rather than strictly on a subjective basis.

Management Characterization

1. Changes since the last assessment

Regulatory program	Significant	Freshwater Wetlands in the Vicinity of the Coast regulations and other various changes to Redbook
Wetlands protection policies/standards	Significant	Freshwater Wetlands in the Vicinity of the Coast regulations and other various changes to Redbook
Assessment methodologies (wetlands health, function, extent)	None	
Impact analysis	None	
Restoration/enhancement programs	Significant	Coastal and Estuary Habitat Restoration Program and Trust Fund development and implementation
Special Area Management Plans	Significant	Revisions to Salt Pond and Narrow River SAMPs; Development and adoption of Greenwich Bay SAMP; Drafting of Metro Bay SAMP
Education/outreach	Significant	Support local efforts to restore coastal habitats through the Trust Fund; new outreach position
Wetlands creation programs	Significant	CELCP; Trust Fund
Mitigation banking	Moderate	Discussions of mitigation banking in boundaries of Metro Bay SAMP
Mapping/GIS/tracking systems	Moderate	Allocated funding for SAV overflights to determine presence/absence of SAV in Narragansett Bay

Wetlands Regulations Policies and Standards

Generally, the RICRMP has policies and prohibitions that protect riverine, saltmarsh, and seagrass resources. For instance, alteraltions to coastal wetlands are prohibited unless there is a public benefit and then 2:1 mitigation is required. Impacts to seagrass habitats are required to be avoided and minimized for many activities including dock development and dredging. The RICRMP vegetated buffer regulations also protect riverine habitats in tidal areas. Although the RICRMP has measures to protect and restore these resources, it was lacking a planning mechanism to direct habitat restoration efforts in coastal areas. Changes in the management regime since the last assessment include:

1. <u>Updating Regulations for Freshwater Wetlands in the Vicinity of the Coast</u>

The Council has tasked the staff with improving the existing regulations protecting freshwater wetlands, to bring them to the level of the Council's regulations safeguarding the state's coastal saltwater wetlands. The CRMC, as in a number of areas, has some regulatory enhancements that are underway in its policy and planning subcommittee, but because of the recent circumstances, the Council accelerated its efforts to improve freshwater wetlands protection.

Definitions and classifications of freshwater wetlands and CRMC jurisdiction will remain the same under the Council's program, but a passage on tributary wetlands was added to the existing regulations. It reads as follows:

> Tributary wetlands are freshwater wetlands that are connected via a watercourse to a coastal wetland and/or tidal waters. A tributary is any flowing body of water or watercourse which provides intermittent or perennial flow to tidal waters, coastal ponds, coastal wetlands or other down-gradient watercourses which eventually or immediately discharge to tidal waters, coastal ponds or coastal wetlands.

The new regulations outline the intrinsic value of freshwater wetlands – wildlife and wildlife habitat, recreation and aesthetics, flood protection, recharge or discharge for surface water or groundwater and water quality – and stress that those functions and values further the goals and objectives of the CRMC's management programs for the protection and management of coastal resources.

Strong language was added prohibiting the alteration, filling, removal or grading or any tributary or tributary wetland that is associated with a coastal wetland or open water system. The regulations state that precise boundaries of these areas will be determined through field inspection when proposals that could impact these systems are being considered.

There is now a section outlining specific situations where the Council might permit the filling, removal or grading of a tributary or tributary wetland, including the 50 foot wetland perimeter and river bank wetland areas outside the wetland "edge," which would not be considered part of the wetland; and where filling is required to access otherwise buildable land when no other reasonable alternatives for access exist. In these cases, applicants will be subject to a number of requirements:

- The applicant will be required to mitigate the area of wetland lost on a 1 to 2 area basis;
- The wetland that is replaced shall be consistent with that which was filled;
- The mitigation, when feasible, shall take place on-site and/or in an area hydrologically connected to the impacted wetland. When not feasible, the Council will consider other viable alternatives, including increasing mitigation ratios;
- Setback and buffer requirements shall be required for the wetland replacement area;
- Enhancement of existing wetland shall not be an acceptable form of mitigation under this section;
- When applicable, all wetland replacement projects will require approval of the RI Department of Environmental Management, Division of Freshwater Wetlands ; and
- When applicable, the applicant shall concurrently submit applications to the DEM and CRMC so that a concurrent review of the proposed activities can occur.

The new regulations also stipulate that filling of wetlands for priority uses (such as marina expansions, for which the Council allows filling of fringe marsh and requires a restoration ratio of 2 to 1) is exempt from this prohibition. The Policy and Planning

Subcommittee has voted unanimously to forward its revised freshwater wetlands regulations on to the full Council for approval. The full Council will decide upon this issue at an upcoming Council meeting in 2006.

2. The Coastal and Estuary Habitat Restoration Program and Trust Fund (RIGL § 46-23.1)

Another change in the management regime is the completion and implementation of the Rhode Island Coastal and Estuary Habitat Restoration Program. The wetlands mitigation provisions of the Clean Water Act and the first Bush Administration's no net loss of wetlands policy provided further impetus for wetland restoration. The National Estuary Programs identified habitat loss as an issue common to estuaries nationwide and the Water Resources Development Act authorized the U.S. Army Corps of Engineers to undertake environmental restoration projects. As recently as 2000, Congress passed the Clean Water and Estuaries Act, which authorized new federal funds for the restoration of coastal habitats. The late Senator John H. Chafee of Rhode Island was largely responsible for development and passage of this legislation.

Together, these primarily federal laws and programs established a mandate and funding for state and federal agencies to restore coastal habitats. By the early 1990's, coastal habitat restoration projects were underway in a number of Northeastern states. Many, if not most, of these projects were undertaken as partnerships with state and federal agencies providing much of the funding: universities often provided scientific expertise; community and environmental groups provided coordination and volunteer involvement; and municipal public-works departments and private contractors handled construction.

In an effort to collaborate with other restoration interests in the state, the Council has dedicated staff resources to develop a habitat restoration plan.

The Coastal and Estuary Habitat Restoration Program and Trust Fund, legislation passed in June 2002 allocating $250,000 from the Oil Spill Prevention, Administration and Response Fund (OSPAR), established within the Coastal Resources Management Council a Rhode Island coastal and estuarine habitat restoration trust fund. Pursuant to the legislation, the “trust shall be available for disbursement *by the council* in accordance with the restrictions and purposes of this chapter and subject to an annual appropriation by the legislature.” (RIGL §46-23.1-3, emphasis added).

On November 26, 2002, the Coastal Resources Management Council unanimously approved funding for eight coastal habitat restoration projects chosen by the Rhode Island Habitat Restoration Team, an advisory technical committee as mandated by the Coastal and Estuary Habitat Restoration Program and Trust Fund. The projects are a result of the efforts of the Rhode Island Habitat Restoration Team, a public/private partnership dedicated to creating a plan and finding funds to complete restoration projects around the state. The Restoration Team is managed collaboratively by the RI Coastal Resources Management Council, RIDEM Narragansett Bay Estuary Program and Save

The Bay.

The Restoration Team drafted and adopted the State Estuary and Coastal Habitat Restoration Strategy, a program describing the state's coastal and estuarine habitats, restoration goals, inventory of restoration projects, projected comprehensive budget and timeline to complete the goals, funding sources, an outreach element, and provisions for updating the plan and project inventory. The CRMC has acted as chair of the interagency restoration team, working to coordinate the technical advisory committee of the team and as project manager on a number of projects. The Team conducted meetings beginning on June 2, 2002 on a regular basis during FY03 to assess potential, as well as on-going, restoration projects throughout Rhode Island based on the adopted Strategy.

The CRMC solicited applications for restoration projects state-wide, ranging from salt marsh restoration to the construction of fish ladders in urban rivers using an open and competitive process solicited in 2003, 2004 and 2005. The Team reviews applications submitted to CRMC and selects habitat restoration projects to receive funding each fiscal year based on the factors to be considered for the purposes of granting monies for estuary and coastal habitat restoration activities as stated in the legislation.

The factors are:

(1) consistency with various state plans and programs
(2) the ability of the applicant to fund and carry out activity;
(3) the proposed monitoring plan;
(4) the effectiveness of any nonpoint source pollution management efforts upstream and the likelihood of re-impairment;
(5) whether the activity can be shown to replace habitat losses that benefit fish and wildlife resources;
(6) potential water quality improvements;
(7) potential improvements to threatened or endangered fish and wildlife habitats;
(8) the level and extent of collaboration by; and
(9) potential direct economic benefit to a community or the state.

By the end of 2002, the Restoration Team compiled a list of priority habitat restoration projects to receive funding for FY03 under the Coastal and Estuary Habitat Restoration and Trust Fund. Since that time, the team has recommended coastal wetlands restoration projects, the creation of anadromous fish runs, and the restoration of eelgrass beds as prioritized projects for funding in FY04 and FY05 (see Appendix C for a comprehensive list of projects funded under the Trust Fund).

Fiscal Year	**Federal Dollars Leveraged**	**Amount of acres restored**
2003	$4,282,000	97.9
2004	$4,091,415	91*

2005	$892,349	1,668‡*
Total	$9,265,764	1,856.9

*this number does not reflect planning projects (e.g., SAV mapping of Narragansett Bay or a wetlands inventory of the south shore)
‡this number reflects both miles upstream, as well as downstream, restored because of fish ladders

From a management perspective, the Coastal and Estuary Habitat Restoration Program and Trust Fund is functioning well primarily due to the fact that appropriations are guaranteed on an annual basis. Therefore, gaps have been reduced and essentially eliminated.

SAMPs

There are a variety of management needs that are factored into the completion of a SAMP. Significant efforts of the Council require time to coordinate, collaborate and analyze issues pertinent to the SAMP. Therefore, developing data in support of issues learned is a considerable gap and all of it needs funding. A planning position dedicated to SAMPs was established in October of 2005. But, in order to accomplish the tasks associated with the completion of a SAMP, more than one dedicated position needs to be in place.

Education and Outreach

While education and outreach is significant, it has only been recently addressed by CRMC via the creation of a new position entitled Public Educator and Information Coordinator. The new staff member has been instrumental in providing education and outreach as needed in a timely fashion to address any issue to which the Council needs to respond.

Coastal and Estuarine Land Conservation Program (CELCP)

The management needs for acquisition of wetlands have been significantly met via the Coastal and Estuarine Land Conservation Program (CELCP). The purpose of the CELCP is to assess Rhode Island's priority land conservation needs and provide clear guidance to applicants for nominating and selecting land conservation projects within the state. Rhode Island drafted a plan and that plan was adopted by the Council in March 2005, although it does not yet have federal approval.

The geographic boundary for the Rhode Island CELCP includes all lands located within the 21 municipalities that abut Rhode Island's coastline along Narragansett Bay, Rhode Island and Block Island Sounds, and the tidal rivers that flow into these water bodies. This geographic area encompasses 100 percent of the state's coastal zone as designated in Rhode Island's federally approved coastal management program under the Coastal Zone Management Act. The area covers the coastal zone but extends further inland into the watershed boundaries. It also represents 44 percent of the state's land

area, and 54 percent of the state's municipalities. Over 70 percent of the state's population lives within this geographic boundary. The area designated for CELCP purposes covers the coastal zone but extends further inland to include watershed boundaries.

The federal program was established in FY 2002 as part of the FY 2002 Commerce-Justice-State Appropriations Act (P.L. 107-77). Several Rhode Island projects have been funded under the CELCP:

- 26 acres at Rocky Point/Town of Warwick ('02 and '03): $2,237,100; and
- 23 acres at Norman Bird Sanctuary ('04) and Town of Middletown ('05): $1,474,454.

Three projects were submitted for funding for FY07:

- 7.5 acres at Conimicut Point Estuary, Warwick: $325,000 requested;
- 65.54 acres of McKendall Open Space, North Kingstown: $1,516,250 requested; and
- 16.5 acres at Church's Point, Little Compton: $850,000 requested.

Updates to Freshwater Wetlands Program

Wetlands has been ranked as a high coastal program priority:

Last Assessment		This Assessment	
High	__X__	High	__X__
Medium	_____	Medium	_____
Low	_____	Low	_____

Conclusion

The assessment identifies two main issues that should be addressed through this strategy: coastal habitat restoration; and an urban coastal greenway.

Wetlands Strategy

1.1 Coastal Habitat Restoration Planning

Program Changes

The goal of this task will oversee the statewide efforts for the planning, management, and implementation of a coastal restoration guide for the state.

Anticipated Effect

This program change will have the effect of restoring natural processes and functions to wetlands and rivers and improving fish and wildlife habitat. In addition, the program will result in the collection of background information on river and wetland health that could lead to the creation of new rules and inform community decision-makers about the state of their wetland resources. Finally it will leverage and expand existing partnerships that have been used to restore salt marshes to address different ecosystems.

Appropriateness

For the past few years, CRMC staff has been the lead on all coordination efforts for the state Habitat Restoration Team (composed of CRMC, RIDEM and Save The Bay, with various other state, federal and nongovernmental partners) in the Team's efforts to develop a statewide habitat restoration plan. A plan, which has been developed and adopted by the Team for the state, needs to be even more comprehensive and inclusive so that a number of data gaps can be identified and thus rectified.

General Work Plan

The implementation and continued development of the state's habitat restoration plan (i.e., continue to evaluate and implement restoration goals), and identification of priority restoration opportunities (location, challenges, economic and environmental coasts and benefits, etc.) through the implementation of the Habitat Restoration Trust Fund, with an emphasis on making the leveraging of federal funds a key criterion with additional review weight.

Additionally, this task will oversee the state's initiatives for restoration projects that fall outside the funding efforts of the abovementioned Trust Fund. These would include ACOE Section 206 and 1135 restoration projects, other federal agency restoration efforts (USFWS), as well as any possible state-initiated projects.

Task outcomes

- annual implementation of the state's Coastal and Estuarine Habitat Restoration Program;
- coordination of the legislatively-identified Habitat Restoration Team, consisting of various state, federal and nongovernmental programs who have restoration objectives as part of their mandate;
- distribution of funds allocated from the state legislature to the Council for the Trust Fund;
- meetings, rankings of projects eligible for funding; report/memorandums on the same; letters of approval/rejection; solicitation of projects eligible for funding; annual report of distribution of funds.

Likelihood of Success

This task has a high likelihood of success. Most state agencies have restoration as a high priority and see CRMC in a leadership role. CRMC is currently involved in inventorying potentially restorable wetlands throughout the state, which will be incorporated into a comprehensive inventory.

Task Funding		**Date of completion**
Federal	$26,451	December 2007
Nonfederal	$0	December 2007
Total	$26,451	

Estimated Costs

Category	**FY2007**	**FY2008**	**FY2009**
Coastal Policy Analyst	53,000	53,000	53,000
Fringe	12,000	12,000	12,000
Overhead	5,000	5,000	5,000
TOTALS	70,000	70,000	70,000

Fiscal and Technical Needs

This strategy will rely on partnering with other agencies and organizations to secure outside funding. The 309 program has been successful in the past with securing funds for restoration projects. Technical needs include equipment used to restore salt marshes (e.g., low pressure ground equipment).

1.2 Urban Coastal Greenways

See Special Area Management Plan, Metro Bay SAMP; and Cumulative and Secondary Impacts Strategy

CUMULATIVE AND SECONDARY IMPACTS ASSESSMENT

Section 309 Programmatic Objectives

I. Develop, revise or enhance procedures or policies to provide cumulative and secondary impact controls.

Resource Characterization

1. Identify areas in the coastal zone where rapid growth or changes in land use require improved management of cumulative and secondary impacts.

Please provide brief discussion of the following info for each area in the coastal zone as asked above:

- Type of growth or change in land use (e.g., residential, industrial, etc.)
- Rate of growth or change in land use
- Types of cumulative and secondary impacts

2. Identify areas in the coastal zone, by type or location, which possess sensitive coastal resources and require a greater degree of protection from the cumulative or secondary impacts of growth and development.

Area	CSI Threats/Sensitive Coastal Resources
Submerged Aquatic Vegetation	Fragmentation; loss of resource; decreased health
Lateral shoreline access	Fragmentation of lateral shoreline access

Management Characterization

1. Identify significant changes in the state's ability to address CSI since the last assessment.

CRMC's rules governing coastal vegetative buffers have been used since 1983 to ensure the protection of Rhode Island coastal waters. The coastal buffer rules have met with some difficulty in the more urban areas of Rhode Island, however. These original buffer regulations were not designed to accommodate the large-scale coastal redevelopment that is currently being proposed for the Metro Narragansett Bay Region (Cranston, East Providence, Pawtucket, and Providence). The RICRMC buffer rules also were not designed for the specific challenges of urban environments. Specifically, the current coastal buffer regulations require that buffer zones be undisturbed, and allowed to grow naturally in order to gain the maximum wildlife habitat and water quality benefits possible. While it is still desirable to achieve the maximum habitat and water quality benefits possible within urban areas, the design of vegetative buffers must also acknowledge and cultivate the need for increased public access to the shoreline. In

addition, urban buffers require thoughtful design and maintenance if they are to achieve water quality goals in areas dominated by impervious cover.

The University of Rhode Island Cooperative Extension Program oversees the Nonpoint Education for Municipal Officials (NEMO) program which offers training in the science, management, and regulation of water resources for community leaders and volunteer board members. The program addresses both cumulative and secondary impacts because it provides decision makers with the skills and resources to identify local water quality problems and to adopt effective pollution controls. A variety of educational programs are offered throughout the year, offering Geographic Information Systems in watershed assessment conducted in partnership with communities as well as technical assistance in protecting local watersheds.

Management of cumulative and secondary impacts is also conducted by Grow Smart Rhode Island. Grow Smart is a statewide public interest group representing a broad coalition of partners fighting sprawl and leading the charge for better-managed growth through innovative policies and programs to: revitalize city, town and village centers; preserve cultural and natural resources; and expand economic opportunity for all Rhode Islanders. This nonprofit's mission is: to bring together diverse interests to protect and improve Rhode Island's quality of life, economic vitality, and environmental health and the unique physical character created by the state's historic cities, towns, and villages and by its farms, forests and open spaces. This will be achieved by promoting business and residential growth in urban and town centers and advancing open-land conservation and the preservation of rural character.

The RICRMC, therefore, endeavored to create a revised coastal vegetative buffer policy for the Metro Bay Region that could accommodate three primary goals: increased public access to the coast, improved water quality via on-site vegetative stormwater treatment, and the preservation and restoration of the aesthetic value of Rhode Island's urban shoreline. Although the federal mandate governing the RICRMC's activities also calls for the consideration of additional coastal values and functions, the Council recognizes that the use, size, and financial constraints of urban parcels require a more focused and flexible approach toward coastal management.

Conclusion

1. Identify priority needs or major gaps in addressing the programmatic objectives for this enhancement area that could be addressed through a 309 Strategy.

The development of SAV regulations (Section 300.18) will be achieved by convening a SAV Group. Currently, the regulations are in draft form and will go to public review in the near future. Therefore, no significant needs or gaps are expected.

Shoreline lateral access presents both a need as well as a gap. Without legislation, the Council's efforts to address lateral access is significantly hampered by *Ibbison*, a Rhode

Island Supreme Court decision that established the legal boundary between state (public trust lands) and private property. To reach its decision, the Court relied on a long line of cases that recognized the "shore" as "between high and low water." The Court in *Ibbison* adopted the federal rule of *Borax Consolidated Ltd. v. City of Los Angeles*, 296 U.S. 10 (1935) by defining the mean high tide (or mean high water) line as the arithmetic average of the high water heights observed over an 18.6 year lunar (Metonic) cycle. The Supreme Court of Rhode Island determined that the landward boundary of the shore is the *mean* high tide mark, not the high tide mark *at a given time*.

The RI House of Representatives introduced a bill (H7317) authorizing CRMC to "protect the public's right to walk along a ten (10) foot wide strip of dry-sand along the beach and the council shall use its enforcement powers to protect this right. This ten (10) foot strip shall be measured from the wave wash of the normal monthly high tide cycles. It does not include storm washes and other extra normal wave events and is limited to the sandy beaches along the state's shore line." The bill has yet to be passed, as the Environment and Natural Resources Committee has recommended that the measure be held for further study.

2. Cumulative and Secondary Impacts has been ranked as:

Last Assessment		This Assessment	
High	_____	High	__X__
Medium	___X___	Medium	_____
Low	_____	Low	_____

Cumulative and Secondary Impacts Strategy

Program Change**:**

For over a year, CRMC has worked with state, federal, and the urban municipal representatives (specifically East Providence and Providence), and other technical professionals to draft a revised policy on urban buffer zones (or urban coastal greenways). Representatives from the environmental community have been consulted concerning certain components of the revised policy. CRMC recognizes that the existing buffer rules are not designed for the specific challenges of urban environments, specifically in the Metro Narragansett Bay Region (Cranston, East Providence, Pawtucket, and Providence). The purpose of this program change is to allow for coastal redevelopment within the Metro Bay Special Area Management Plan (SAMP) region, while also increasing public access to the coast, improving water quality via on-site vegetative stormwater treatment, and preserving and restoring the aesthetic value, including natural habitats, of Rhode Island's urban shoreline.

Anticipated Effect

The Council envisions a continuous Greenway corridor along upper Narragansett Bay

that will ensure the protection of coastal resources, as well as enhancement of the unique views available to this state's citizens and visitors as they travel along the urban coast of the Metro Bay Region. The Urban Coastal Greenways program will also secure the ability of urban residents and visitors alike to access the shoreline that is tied to the rich history, culture and natural beauty of Rhode Island. (Please refer to the Special Area Management Assessment).

Appropriateness

This is an appropriate way to address the need for improved buffer policies because the coastal buffer rules have met with some difficulty in the more urban areas of Rhode Island. These original buffer regulations were not designed to accommodate the large-scale coastal redevelopment that is currently being proposed for the Metro Bay Region. Specifically, the current coastal buffer regulations require that buffer zones be undisturbed, and allowed to grow naturally in order to gain the maximum wildlife habitat and water quality benefits possible. While it is still desirable to achieve the maximum habitat and water quality benefits possible within urban areas, the design of vegetative buffers must also acknowledge and cultivate the need for increased public access to the shoreline. In addition, urban buffers require thoughtful design and maintenance if they are to achieve water quality goals in areas dominated by impervious cover.

General Work Plan

The revised Urban Coastal Greenway Policy will be developed and brought to the Policy and Planning Subcommittee for review and action. Once the Subcommittee recommends rule making action, the Policy will again go out to public notice for 30 days prior to the full Council hearing. If the Council approves the final Urban Coastal Greenway Policy, the document would become effective 20 days after notice to the Secretary of State.

The second task is to implement the various buffer proposals that are currently proposed within the draft regulations. The third task will be to monitor the effectiveness of the newly created buffer policy.

Year 1-complete development of an urban coastal greenway policy; implement the policy; go out to public notice with new policy
Year 2-implement policy and based on implementation issues, assess possible revisions of policy
Years 3 and 4-develop possible changes to policy based on assessments and feedback from public comments; go through rule-making procedures to address revisions
Years 2 through 5-work with Legislature to create a fund; work on wording of legislation

Currently, S2365, which was not passed during this Legislative session stated, in pertinent part:

> "High Priority Conservation Area" (HPCAs) and "High Priority Restoration Areas" (HPRAs) are those areas identified by the council as parcels or areas within the Metro Bay Region that should be preserved or restored for their habitat value.
>
> "Metro Bay Region" is the northern region of the Narragansett Bay,

encompassed within the boundaries of the Metro Bay Special Area Management Plan (SAMP). The SAMP boundary stretches north from the southern tip of Pawtuxet Neck in Cranston to Mill Pond in Pawtucket, then around the bay to the East Providence Water Pollution Control Facility at Crest Avenue. The boundary also includes the Woonasquatucket River tidal portion to Valley Street and the Moshassuck River to Smith Street. The municipalities contained within the Metro Bay Region are Pawtucket, East Providence, Providence, and Cranston.

…Starting on July 1, 2006, funds collected under the Urban Coastal Greenways Program for the Metro Bay Region, established pursuant to council regulations, shall be deposited into the trust. Such funds shall only be available for coastal habitat restoration and/or habitat conservation of a designated HPRA or HPCA within the Metro Bay Region.

Likelihood of Success

This task has a high likelihood of success. As part of the Urban Coastal Greenway Policy process, a Priority Lands Analysis was performed to assess the conservation, restoration, and/or scenic values of coastal Metro Bay properties. The analysis prioritized parcels for conservation and restoration based on the value of the land as habitat or as a link between important habitat areas. This work has been completed and will be incorporated into the NOAA-approved program. Partners involved in this process include: RI Sea Grant, URI's Coastal Resources Center, Planning Departments of the cities of Providence, East Providence, Cranston and Pawtucket.

Estimated Costs

Category	FY2007	FY2008	FY2009	FY2010
SAV regulatory development	$13,375	0	0	0
Shoreline lateral access	$13,375	$26,750*	$26,750*	$26,750*

*to begin in July of next fiscal year when legislation is passed

Technical and Fiscal Needs

Implementing this task relies on funding/support from partners, URI's Coastal Resources Center, cities of Providence, East Providence, Pawtucket and Cranston. So far, approximately $25,000 has been awarded toward Urban Coastal Greenways.

SPECIAL AREA MANAGEMENT PLANNING

Section 309 Programmatic Objectives

- I. Develop and implement special area management planning in coastal areas applying the following criteria:

Resource Characterization

Areas of the coast subject to use conflicts that can be addressed through special area management planning:

Area	**Major Conflicts**
Excise of federal lands	Inconsistence development patters when land is excised
Redevelopment potential of urban shoreline	Potential for loss of access and loss of habitat value during redevleopment

The five Special Area Management Plans (SAMP) that are currently implemented by the CRMC collectively represent a divergent range of coastal resources and uses.

Salt Pond SAMP
The CRMC's first SAMP was adopted in 1984 to manage the economically valuable and environmentally sensitive coastal salt ponds and their associated land areas along Rhode Island's south shore. The Salt Pond Region SAMP reflected the recognition that effective coastal zone management at times requires more than regulating activities at the coastline. Representing the CRMC's first watershed based approach to coastal zone management, the Salt Pond Region SAMP regulated various development and other use activities that occurred within a thirty-two square mile area that covered the entirety of Rhode Island's south shore, and extended several miles inland from the coast.

Narrow River SAMP
The Narrow River SAMP followed in 1986. This SAMP also instituted a watershed approach, but in this case, it was applied to an estuarine river system. However, despite the differences in the ecological characteristics of each SAMP area, the idea to transcend the limitations inherent in applying environmental protection measures according to political boundaries (i.e. municipal boundaries), was common to both SAMPs. In each case, the resultant boundaries identified meaningful ecosystems for the purpose of regulating activities on a watershed wide basis.

Pawcatuck River and Little Narragansett Bay SAMP
The Pawcatuck River and Little Narragansett Bay SAMP takes the idea of transcending political boundaries for the purpose of applying environmental protection measures, to the state level. This is CRMC's only current interstate SAMP. Similar to the Narrow

River SAMP, this SAMP also regulates activities within the watershed of an estuarine river. But it also covers activities that occur in the more oceanic coastal waters of Little Narragansett Bay.

Providence Harbor SAMP
Providence Harbor is Rhode Island's largest urban waterfront area. Commercial shipping brings petroleum products and other goods that an entire regional economy relies upon, to the heavily developed industrial waterfront that dominates much of the harbor. But residential communities also ring the harbor. And recreational uses, such as marinas, characterize certain stretches of the waterfront. The Providence Harbor SAMP seeks to balance these various uses, and also improve water quality.

Management Characterization

1. Areas of the coast that have been or are being addressed by a special area management plan since the last assessment.

Area	Status	309 Involvement
MetroBay	On-going	Coordination
Aquidneck Island	Exploratory	Coordination/technical assistance/research of management issues

Greenwich Bay SAMP

The most recently adopted SAMP is the Greenwich Bay SAMP. Greenwich Bay is an estuary—a semi-enclosed inlet of the sea in which seawater is diluted with fresh water. It contains five protected coves with five square miles of shallow water and is embraced by a 26-square-mile watershed. Greenwich Bay is a highly productive estuary that has provided people with food, shelter, transportation, trade, and recreational opportunities for centuries. However, the impacts of land uses in bordering Warwick and East Greenwich, and, to a smaller degree, West Warwick, have led to a serious water quality decline in the bay. The Greenwich Bay SAMP describes the present status of the bay, characterizes its watershed, identifies sources of pollution, and recommends steps to help government work with communities to restore, protect, and balance uses of Greenwich Bay for this and future generations.

The R.I. Coastal Resources Management Council (CRMC) coordinated with Warwick, East Greenwich, government agencies, and community organizations to prepare the Greenwich Bay Special Area Management Plan (SAMP), which CRMC adopted on May 10, 2005.

(see: http://www.crmc.ri.gov/pubs/programs/gb_samp/GreenwichBay051005.pdf)

Conclusion

1. The State and its federal and local partners have a number of processes in place to proactively manage resources. So far these have been adequate to address potential conflicts without the need for a formal SAMP. These management processes include public workshops and the formation of subcommittees to address such management issues as seagrass protection and restoration, beach replenishment, the protection of sensitive areas, tourism development, coastal and marina development, coastal residential development, education, local government involvement and community programs, water quality, pollution and waste management and wildlife management.

2. Coastal Program Priority

Last Assessment		This Assessment	
High	_____	High	___X___
Medium	_____	Medium	_____
Low	__X___	Low	_____

Special Area Management Planning Strategy

Program Change #1: Metro Bay Special Area Management Plan
The Providence Harbor SAMP is in the process of being revised and has been renamed the Metro Bay SAMP. This revised SAMP represents an important milestone for the CRMC. Twenty years ago, CRMC created the Providence Harbor SAMP, helping the state work with cities to guide urban development while managing and protecting natural and coastal resources. Since then, the cities of upper Narragansett Bay have enjoyed economic growth and cultural renewal, as well as a renewed appreciation for the waterfront and its natural assets. Yet, change also brings challenge, as cities grapple to balance redevelopment goals with efforts to provide waterfront public access—specifically, urban coastal greenways. This activity will allow CRMC to continue to adjusting its SAMPs to remain relevant and adaptive for its residents, businesses, and visitors. Once completed, the Metro Bay SAMP will be submitted for incorporation into NOAA's approved CZM Program.

Anticipated Effect:

CRMC recognizes these changes and challenges, and believes that the time has come to revisit the original SAMP and revitalize it with new policies to support the best urban development while protecting the area's special natural environment and cultural assets. The Metro Bay region is a gem for the people of Rhode Island and has long been home to one of the country's key urban waterfront areas. As such, CRMC is committed to creating a management plan that protects, enhances, and honors this important heritage.

The municipalities involved in the Metro Bay SAMP are: Cranston, East Providence, Pawtucket, and Providence. Each municipality is acting to make Narragansett Bay's largest urban waterfront a more appealing place to live and work by:

- improving the economic, social, and environmental resources of the working waterfront;
- attracting world-class developers by making permitting more predictable and efficient; and
- providing recreational opportunities and public access to the water.

It is obvious that significant differences exist between the characteristics and uses of the heavily developed Providence Harbor, and the other less developed coastal areas of the state that are also regulated by CRMC through SAMP planning. But a common principle applies between them. SAMP planning in Rhode Island has been driven by various, often competing, stakeholders that agree with the need for comprehensive planning to ensure a balance between environmental protection and equitable long-term uses of the state's coastal resources.

General Work Plan:
CRMC, in conjunction with various Planning Departments within the Metro Bay's jurisdiction, have been meeting to formulate a plans on various issues such as Urban Coastal Greenways, Floodplain Management, Water-dependent Uses, Recreation, Brownfields, and Habitat Restoration Population, which are affecting each of the cities. These issues will be discussed at length within the chapters of the Metro Bay SAMP.
Year 1-meet with planning departments of cities within jurisdiction of SAMP to identify and discuss issues of concern.
Year 2-draft chapters of SAMP and receive public input; incorporate public comments into SAMP.
Year 3-finalize/revise chapters of the SAMP.
Year 4-obtain CRMC approval of the SAMP; submit for incorporation into NOAA's approved program.
Year 5-implement the SAMP.

Likelihood of Success:
This SAMP is a particularly appropriate way to address such needs as improving buffer policies because the coastal buffer rules have met with some difficulty in the more urban areas of Rhode Island. These original buffer regulations were not designed to accommodate the large-scale coastal redevelopment that is currently being proposed for the Metro Bay Region. Specifically, the current coastal buffer regulations require that buffer zones be undisturbed, and allowed to grow naturally in order to gain the maximum wildlife habitat and water quality benefits possible. While it is still desirable to achieve the maximum habitat and water quality benefits possible within urban areas, the design of vegetative buffers must also acknowledge and cultivate the need for increased public access to the shoreline. In addition, urban buffers require thoughtful design and maintenance if they are to achieve water quality goals in areas dominated by impervious

cover. The CRMC has already devoted resources to develop and implement an inclusive and comprehensive approach to revising the Metro Bay SAMP, and has received positive feedback from the Providence area residents, government, non-profit organizations and businesses who have been engaged in the process.

Aquidneck Island
CRMC has met with the Aquidneck Island Planning Commission to assess the potential of a SAMP for Aquidneck Island (Newport, Middletown, and Portsmouth).

Estimated Costs

Category	FY2007	FY2008	FY2009	FY2010
MetroBay	$13,375	$13,375	0	0
Aquidneck Island	$13,375	$13,375	$26,750	$26,750

Fiscal and Technical Needs
This strategy will rely on partnering with other agencies and organizations to continue the revisions to the document as well as its implementation.

Program Change #2: The Marine Resources Development Plan (MRDP)
The goal of this program change is to develop and implement a Marine Resources Development Plan
(see: http://www.crmc.ri.gov/projects/mrdp/MRDP_Final_Jan10.pdf)

Anticipated Effect:
This program change will have the effect of providing a roadmap for improving the health and functionality of the state's marine ecosystem, providing for appropriate marine-related economic development and promoting the use and enjoyment of these resources by all Rhode Islanders.

General Work Plan:
While the MRDP is a CRMC document, a guide to action and to practice, it is also intended to facilitate collaboration, both through the Rhode Island Bays, Rivers, and Watersheds Coordination Team and with other partners, especially cities and towns. The Council is the central feature of the CRMC, and the Council has always viewed itself as connected to the larger community rather than as a stand-alone administrative agency. This viewpoint informs the MRDP.

The concept of the MRDP emerged from a series of meetings and task force reports to the General Assembly and the Governor's urging that Rhode Island as a whole needed to do a better job in marine and coastal resources management. In 2004, the Rhode Island General Assembly found that staff agency collaboration was not at the level required to meet the challenges and take full advantage of the opportunities offered to the state as it looked to the future. They also recognized that there was insufficient state level integration among the policies and actions of four key actors: the Department of

Environmental Management (DEM), the Coastal Resources Management Council (CRMC), the Department of Administration (DOA) and the Economic Development Corporation (EDC).

Proposed Tri-State SAMP
RI CRMC continues to look beyond its borders to implement SAMPs as a tool for tackling issues that justify a regional solution. As part of the MRDP effort, the CRMC has proposed a tri-state agreement involving Rhode Island, Massachusetts, Connecticut, and New York to be developed over the next 5-year period. The agreement is in response to the regional government approach to ocean management as suggested by the U.S. Commission on Ocean Policy in its September 2004 report entitled "An Ocean Blueprint for the 21st Century." Rhode Island shares a commonality with both Long Island Sound and Buzzard's Bay; therefore, a Special Area Management Plan designed to respond to ocean and coastal issues in a coordinated fashion across jurisdictional boundaries by developing regional goals and priorities would improve responses to regional issues. Such topics include (but are not limited to) shipping, dredging, fisheries, offshore aquaculture, and energy use.

Year 1- Develop MRDP Action Plan, data collection. Facilitate meetings to explore tri-state SAMP with Massachusetts and Connecticut.
Year 2- assess needs and characteristics of a SAMP for the proposed area; develop framework for a SAMP
Year 3- Revise MRDP Action Plan; begin development of SAMP; seek approval from CRMC for MRDP Action Plan
Year 4-continue development of SAMP
Year 5-adopt and implement

Likelihood of Success
This program change has a high likelihood of success because it will address issues that have changed since the inception of the Coastal Resources Management Program in 1971. The pressures on the CRMP as an institution comprising the Council, staff, consultants, and partners, are different than they were even as recently as a half decade ago. Public expectations and opportunities for a vibrant coastal state and the leadership to make it happen are greater than ever. The Marine Resources Development Plan (MRDP) is constructively responsive to those expectations and opportunities.

The CRMC finds that uses of marine resources in Rhode Island are intensifying; that optimizing the potential of this intensification will require intentional action—i.e. it will happen by design, not by accident; and that needed intentional actions are collaborative in nature. The themes of intensification, design, and collaboration run throughout the MRDP. The MRDP is a guide to action *and* to practice. It sets forth what needs to be done and how to do it. Action and operations are distinct concepts, which are more powerful when they are complementary. The MRDP as a guide to both is intended to provide a basis for that combination.

The effective, constructive response to changing dynamics presented in the MRDP constitutes an evolution of the CRMC. It presents new roles to be played by the Council—body made up of voting members—in policy adoption and planning; by staff in support of the Council and in program administration; by consultants, including especially those located in academia; and by partners, including other state agencies, cities and towns.

The basic premise of the MRDP is that better results are achieved when expectations are clear and when parties work together. From its inception, the CRMC has had planning and coordination among its powers and duties. The MRDP is structured around these authorities and builds on the CRMC's leadership in water-use zoning and special area management planning. At the time of the preparation of the MRDP, coastal land values in Rhode Island have never been higher. At the same time, the risks of inappropriate coastal development have been made vivid by the devastation wrought by hurricane Katrina in Louisiana and Mississippi. Tragedies of this kind are a part of Rhode Island's history and have taught us that coastal activity must be guided by best practices.

The goals of the MRDP are:

- Properly functioning bay and lagoon ecosystems, including coastal buffers, wetlands, salt marshes and sea grass beds that can be both ecologically effective and economically beneficial;
- Abundant and sustained fishing and fisheries resources – recognizing the need for diversified and healthy populations of fish and shellfish in our Bay, rivers and lagoons in order to reach this goal;
- Successful coastal places, pleasant neighborhoods, and access to improved coastal parks, greenways and a variety of options for accessing the shore and its tributary rivers from land and sea; and

Marine-based economic development that meets the aspirations of local communities and is consistent and complementary to the state's overall economic development needs and goals. This development draws upon and is inspired by the beauty and quality of the environs, including the protection and enhancement of maritime activities, marine culture and a sense of place.

Estimated Costs

Category	**FY2007**	**FY2008**	**FY2009**	**FY2010**
MetroBay	$13,375	$13,375	0	0
Aquidneck Island	$13,375	$13,375	$26,750	$26,750
Tri-State SAMP Development	$20,000 (310 funds)			

Fiscal and Technical Needs

The technical needs of this program will be provided by the Department of Environmental Management (DEM), the Department of Administration (DOA) and the Economic Development Corporation (EDC). The University of Rhode Island's Coastal

Resources Center and Rhode Island Sea Grant will (and have) play a large part in the development of the plan, as well as the RI Senate Policy office, and the RI Economic Policy Council.

COASTAL HAZARDS ASSESSMENT

Section 309 Programmatic Objectives

I. Direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from sea and Great Lakes sea level rise.

II. Preserve and restore the protective functions of natural shoreline features such as beaches, dunes, and wetlands.

III. Prevent or minimize threats to existing populations and property from both episodic and chronic coastal hazards.

Coastal Hazards Characterization

1. The state of Rhode Island rates natural hazards risks according to the level of risk and then also according to the potential severity of the impact. Below are the Coastal Zone hazards identified by the State of Rhode Island.

Hazard	**Level of Risk / Frequency**	**Severity**
Hurricanes / typhoons	Frequent	high
Storm surge / coastal flooding	Frequent	high
Flooding	Frequent	high
Shoreline erosion	Frequent	high
Sea level rise	Frequent	moderate
Subsidence	moderate	moderate
Geological hazards	Infrequent moderate	moderate: earthquake high: mass wasting (slope failure)
Dam Failure	Infrequent	moderate
Severe Winter Weather	Moderate	moderate
Wildfire (due to flammable phragmites stands)	Infrequent	low

2. The general level of risk from the above listed hazards has not changed since the last assessment with the following exceptions.

Hurricane risk, particularly from storm surge, is high due to the orientation of the south facing Rhode Island coastline and the geomorphology of Narragansett Bay. Although the waters are cooler in New England that in the Gulf of Mexico or off the southern Atlantic coast, forward speed of the hurricane often increases as it travels up the Atlantic coast, allowing the storm to retain its intensity. The Great New England Hurricane of 1938 was characterized as a Category 3 hurricane on the Saffir-Simpson scale. However, with a forward speed that was estimated at 60 miles per hour, the resulting damage was more consistent with a higher intensity storm. The current risk for a severe hurricane in Rhode Island is higher than normal. The observed atmospheric and ocean conditions currently favor the development of more storms with greater intensities than normal (the multi-decadal signal). Historically, the most severe storms to hit Rhode Island have occurred in these higher storm frequency cycles. National Hurricane Center is predicting a higher than normal hurricane season for 2006. This trend is likely to continue for several years, putting Rhode Island at a higher risk for hurricanes.

Sea level change is a constant process. Data from the NOAA/NOS Newport Tide gage show a historic sea level rise rate of 2.57mm/year from 1939 to 1999. The records do not show acceleration in rate of sea level rise. IPCC models estimate a eustatic sea level rise between 90mm and 880mm by the year 2100 (IPCC, 2001). Isostatic changes also need to be considered when determining relative sea level change. It is believed that in Rhode Island the lithosphere continues to subside as a result of post glacial readjustment. The combined effect of eustatic (change in water volume in the oceans) and isostatic (vertical movements of the land surface) changes in Rhode Island will result in a relative sea level rise that is higher than the IPCC eustatic estimates alone.

There is a great deal of uncertainty in the estimates for sea level rise in the twenty first century. In recent years, it has been well documented that the world's glaciers are melting and ocean temperatures are increasing. The higher estimates for relative sea level rise are probably more appropriate to use for planning purposes. At the present time, there are no sea level rise requirements for building in the flood zone.

Shoreline erosion is storm dependant. Some climate change models indicate an increase in storm activity with the rise in global temperatures (IPCC, 2001). Again, there is a great deal of uncertainty tied to future forecasts. Given the historic level of storms that impact the Rhode Island coast, storm induced erosion is clearly a problem that will continue into the future. CRMC regulations restricting development on barrier beaches have been effective for many years. CRMC regulations prohibit new residential and commercial structures as well as new infrastructure on undeveloped barriers and moderately developed barriers. CRMC regulations also require erosion setbacks for new and substantially improved properties on critically eroding shorelines. However, many of the properties that were constructed using an erosion setback of thirty year times the average annual erosion rate are now at risk.

3. The main risks from inappropriate development have to do with the intersection of the built environment (houses, commercial buildings, infrastructure, and roads) and low-lying coastal areas. Past development has filled or encroached on what used to be coastal

wetlands and salt marshes. The remaining wetlands are unable to absorb stormwater running off from the larger amounts of roads, roofs, and driveways. As a result, flooding of low-lying roads occurs more frequently. Furthermore, structures, ISDS, and infrastructure are being built without regard to future potential sea rise. These structures and infrastructure will be under threat from coastal storm surges and flooding as sea level continues to rise. CRMC regulations prohibiting new infrastructure on barriers has been effective at curbing some of the development pressures in high hazard areas. CRMC is also actively involved in wetlands restoration in several locations throughout the state and with the beneficial reuse of sediment particularly for hazard mitigation. However, it is unlikely that these measures are sufficient to mitigate the negative impacts of new development within the watersheds.

In terms of coastal erosion there are three important coastal environments in Rhode Island that need to be considered. These include the Narragansett Bay estuary, the south shore headland/barrier complex with associated coastal lagoons, and Block Island, a small offshore island that is a segment of glacial end moraine that extends from Long Island, NY to Cape Cod, MA.

The Narragansett Bay estuary formed when rising sea levels inundated the former river valleys of the Narragansett Basin. There are three large islands (Aquidneck, Conanicut and Prudence) and numerous small islands found throughout the bay. The bay islands are predominantly bedrock covered with glacial till. The Narragansett Bay shoreline is a mix of bedrock outcrops and sediment that was deposited into glacial streams and lakes. Steep bluffs of unconsolidated sediment can be seen in many locations along the shoreline. These bluffs are most susceptible to erosion. Beaches generally consist of sand and cobble that eroded from the bluffs.

Narragansett Bay is a tide-dominated coastline. The mean tide ranges from 3.6 feet at the mouth to 4.6 feet at the head of the bay. Spring high tides range from 4 to 6 feet. Tidal currents average 1.5 knots. Although there are some areas in Narragansett with high erosion rates, for the most part flooding and storm surge are the more critical hazards. Rhode Island is at risk for hurricane hazards. Despite the cooler waters in the North Atlantic, hurricanes are a very serious threat. These storms usually accelerate as they move up the eastern seaboard. If the northeast quadrant of the hurricane hits the RI south shore or Narragansett Bay, the cumulative effects of the hurricane force winds and the forward motion combine to create a more serious storm than may be indicated by the Saffir-Simpson scale. Storm surge is also most dangerous in the northeast quadrant as the circulating winds push the water against the shore. The configuration of Narragansett Bay further enhances the storm surge. Storm surge water levels measured at 17.5 feet MLLW at the Providence tide gage during the 1938 Hurricane.

Narragansett Bay has several sub-embayments. One of these embayments, Greenwich Bay, measures approximately five square miles in aerial extent within a twenty-five square mile watershed. Greenwich Bay is typical of the intensively used suburban water bodies within Narragansett Bay. Coastal bluffs consisting of unconsolidated glacial delta sediment are eroding at average annual erosion rates of less

than two feet along the natural shorelines of Greenwich Bay. However, close to a third of the shoreline has been engineered with shoreline protection structures that are in various states of repair. These structures impede erosion, thus protecting the coastal properties during nor'easters. However, this also limits the amount of sand available for beach replenishment. The beaches of Greenwich Bay have been narrowing or have disappeared altogether in some locations. In addition, several of the neighborhoods surrounding Greenwich Bay are susceptible to storm surge flooding several blocks inland during hurricanes. The Rhode Island shoreline and Narragansett Bay are at risk for hurricanes. Shoreline protection structures along Greenwich Bay are not designed for hurricane storm surge and will likely be damaged or destroyed in the event of a major hurricane.

The Greenwich Bay Special Area Management Plan (2005) identifies hazards within the watershed. In the event of a hurricane 17,000 to 30,000 people will need to evacuate the low lying coastal area. The coves off Greenwich Bay (Greenwich, Apponaug, and Warwick coves) contain some of the highest density marina and boating facilities in the state. The marinas and yacht clubs house alone have about 3500 boat slips. In addition, the Towns of Warwick and East Greenwich have numerous mooring fields in the bay and coves. The number of boats housed in Greenwich Bay will present problems when the next hurricane strikes Rhode Island. Most docks and dry racks are not able to protect boats in strong hurricane conditions. The numbers of boat ramps are not likely to be adequate to remove all boats within the evacuation time limits. Mandatory removals are not often recommended due to the human safety risks (FEMA, 2002d).

The Providence, Seekonk, Moshassuck and Woonasquatucket Rivers at the head of the Narragansett Bay are also susceptible to hurricane storm surge. The upper reaches of the estuary is densely developed. Much of the urban industrial waterfront is sited for redevelopment in the near future. Erosion and storm surge are critical issues, especially since much of the redevelopment areas are likely brownfields where the erosion of sediment caps could result in public health risks.

The south shore is a barrier/headland system that consists of narrow barrier spits alternating with low-lying headland bluffs composed of glacially derived sediment. The headland bluffs and barrier spits consist of basically the same material. The barriers formed from sediment that was eroded from the headlands and transported by waves and currents across topographically lower areas that were inundated with the rising sea level. Except in a few areas with bedrock outcrops, the headlands and barriers are eroding at a comparable rate. Shoreline Change Maps measuring erosion rates along the Rhode Island south shore have been incorporated into the RICRMP. Building setbacks are based on the average annual erosion rates (30 x AAER for residential properties and 60 x AAER for commercial properties).

The south shore barriers are sediment starved. This situation has been exacerbated since the 1950s by the inlet stabilization at the three largest lagoons. Accretion of the flood tidal deltas accelerated after widening of the inlets and construction of permanent jetties. The flood tidal deltas have been expanding

approximately three times as fast as before the jetties were built. The sediment transported through the inlets is removed from the littoral system. Prior to the inlet stabilization most of this sediment would have been transported along the shore for deposition on the beaches and offshore sand sheets. The South Coast Habitat Restoration Project, a joint effort by CRMC and the Army Corps of Engineers, involves dredging some of the sediment from the sinks within the coastal lagoons to the active shoreface. The addition of sediment to the Charlestown Barrier likely saved several residential properties from storm induced damage. The Charlestown Barrier beach has retained a dissipative (low gradient) profile with little or no scarping from the start of dredging in 2004, despite a series of winter storms that have resulted in severe erosion on many of the South Shore beaches. Beneficial reuse of dredged sediment is also proposed for navigational dredging in Point Judith Pond and in the ongoing restoration project.

Block Island is located off the Rhode Island coast. The island is part of the glacial end moraine that extends from Long Island to Cape Cod. Much of the island's shoreline is backed by steep bluffs of unconsolidated sediment. The bluffs have been eroding episodically since their formation in the last ice age. Erosion is the result of a combination of geological processes that are dependent on the severity of coastal storms and wave action at the base of the bluff as well as the composition, slope and degree of saturation of the sediment comprising the bluff. Erosion rates for the Block Island coastal bluffs have not been incorporated into the RICRMP. The ACOE CHARTS project is planning to fly a LIDAR survey of the bluffs along the Block Island south shoreline providing a bare earth topographic model. These data should be incorporated into an analysis of bluff retreat for future management purposes.

Management Characterization

1-2. Changes to State hazards protection programs.

Mechanism	**Changes Since Last Assessment**
Building setbacks/restrictions	Significant Moderate **None**
Methodologies for determining setbacks	Significant **Moderate** None
Repair/rebuilding restrictions	**Significant** Moderate None
Restriction of hard shoreline protection structures	Significant Moderate **None**
Promotion of alternative shoreline stabilization methodologies	**Significant** Moderate None
Renovation of shoreland protection structures	Significant **Moderate** None
Beach / dune protection	**Significant** Moderate None

Permit compliance	Significant	Moderate	**None**
Inlet management plans	Significant	**Moderate**	None
Special Area Management Plans	**Significant**	Moderate	None
Local hazards mitigation planning	**Significant**	Moderate	None
Local post-disaster redevelopment plans	Significant	**Moderate**	None
Real estate sales disclosure requirements	Significant	Moderate	**None**
Restrictions on publicly funded infrastructure	Significant	Moderate	**None**
Public education and outreach	**Significant**	Moderate	None
Mapping / GIS / tracking of hazard areas	**Significant**	Moderate	None

CRMC regulations restricting development on barrier beaches have been effective for many years. CRMC regulations prohibit new residential and commercial structures as well as new infrastructure on undeveloped barriers and moderately developed barriers. CRMC regulations also require erosion setbacks for new and substantially improved properties on critically eroding shorelines. However, many of the properties that were constructed using an erosion setback of thirty year times the average annual erosion rate are now at risk. The Coastal Change Maps are being updated using new digital orthophotography that has just become available through the RI Geographic Information System (RIGIS). Shoreline Change Maps are currently being developed for the coastline along Narragansett Bay. The US Army Corps of Engineers is planning to fly LIDAR for selected areas of the coastline in 2006. The south coast bluffs of Block Island and the barrier/headland shoreline along the southern RI mainland will be mapped. Once the LIDAR coverage is made available, bluff retreat rates for the Block Island need to be developed. Shoreline change rates for Block Island and Narragansett Bay need to be adopted into the RICRMP. Coastal properties at risk should be delineated on the Shoreline Change Maps.

New and substantially improved properties are required to comply with the IBC 2000 flood zone regulations (elevation above the 100 year storm surge levels, but no freeboard requirements). CRMC regulations requiring conformance with flood zone construction have saved many properties but have had some unintended effects. The houses constructed for surviving the storm end up on the active beach because the dune or coastal bluff migrated landward in response to the storm energy. This is an issue that CRMC needs to address. CRMC should investigate how other states handle this issue, for example Maine just developed regulations requiring that properties be removed if they are in the intertidal zone for 6 months. Also CRMC needs to assess the public access impacts of these policies.

CRMC and DEM developed new regulations for ISDS repair in critical erosion areas (January 2006) after a series of storms that impacted several properties in South Kingstown, RI. The regulations are as follows: a completely contained system is required if the repaired system must be installed less than 50 feet of the erosional dune or bluff scarp; Innovative Technology is required for installation between 50 and 100 feet from the eroding dune scarp; any system that is otherwise permitted if repairs are greater than 100 feet from the eroding dune or bluff scarp. The new regulations will allow the coastal property owners to repair their ISDS while protecting public health. These regulations address ISDS failure due to erosion, but do not consider the role of sea level rise in ISDS failure. Groundwater monitoring is an issue that CRMC should consider to determine the role of sea level rise on groundwater resources, which will ultimately affect drinking water supplies and ISDS functioning.

University of Rhode Island Department of Geosciences has conducted several sidescan sonar surveys along the RI South Shore, Greenwich Bay and in the Metro Bay area (various funding sources including ACOE for beneficial reuse of dredge material and for SAMP development). These surveys characterize offshore sediment facies and are an important component for understanding the sediment budget as well as impacts of CRMC regulated activities to habitat. The data collection and interpretation of the shoreface environments from the side scan sonar imaging are important data sets that have been used to develop dredge materials disposal strategies for beach replenishment. Depositional environments that were mapped along the RI south shore include the nearshore sandsheets where dredged materials would likely be transported by currents along the shore and onto the beaches for the most effective hazard protection. Areas of glacial cobbles and boulders that are important fish habitat can be avoided. Zones of downwelling, where sand moves offshore beyond the closure depth, were identified and can also be avoided to keep the maximum amount of sand within the sediment system. New facies maps were used to develop a beneficial reuse strategy for the Point Judith Pond navigational dredging to get sediment to the most erosion prone areas of the coast. Additional study of the energy budget was identified as a need in the previous 309 report. This continues to be a need for better prediction of shoreline change.

CRMC is currently working with the US Army Corps of Engineers to restore eelgrass habitat in Ninigret Pond, the largest of the coastal lagoons along the South Shore. Beneficial reuse of the sediment from dredging the flood tidal delta is a priority for the project. The sediment that was transported through the inlet into the pond (sink) is being returned to the littoral system by hydraulically pumping the sand into the intertidal zone. Offshore bars have migrated back to the nearby beaches, creating a dissipative profile disperses wave energy before damage is done to the coastal properties along the beach. Monitoring is needed to look at the long term benefits of the beneficial reuse. This can be done with beach profiles, comparison of shoreline changes using orthophotography, LIDAR and GPS survey of coastal features. Offshore sediment transport observations are also recommended using digital imaging, sidescan sonar and multibeam bathymetry.

CRMC and the US Army Corps of Engineers recently finished construction on the

Allin's Cove Wetlands Restoration Project where alternative shoreline stabilization methods were emphasized for infrastructure protection. The inlet into Allin's Cove was relocated to a pre 1939 position and a new spit was reconstructed to limit erosion along a roadway. The spit migration is being monitored by CRMC using monthly GPS surveys of the high water line.

In Narragansett Bay, concerns about water quality and resource degradation in the bay, as well as hazard risk, have led to initiation of both the Greenwich Bay Special Area Management Plan and the Metro Bay Special Area Management Plan. CRMC completed several studies including shoreline characterization, shoreline change analyses, a survey of the extent and condition of shoreline protection structures, and sidescan and multibeam bathymetric studies in Greenwich Bay and in portions of the Metro Bay SAMP. CRMC is currently working on sensitivity analyses for flooding associated with storm surge, sea level rise, and the cumulative impacts of fill and other redevelopment activities within this upper estuarine area. Better topographic data is essential for these studies.

The Providence Metropolitan area waterfront is undergoing rapid redevelopment. It is important to look at the cumulative effects of this development particularly in regard to hazards. CRMC and many other federal, state and municipal agencies would benefit from the collection of statewide LIDAR data. LIDAR will provide a high resolution, consistent topographic data of large expanses of coastal areas that could be used to analyze the impacts of floodplain development on a regional level, for understanding coastal geomorphology, and for modeling flood inundation zones to provide the safest pre-disaster mitigation strategies and the best evacuation plans for the citizens of Rhode Island in the event of a disaster. In addition, these data can be used for improving water quality by examining stormwater discharges, and in CRMC Special Area Management Areas for delineating watersheds and analyzing groundcover, vegetation and impervious surface. The last LIDAR was done in Rhode Island in 2000, and only covers the south shore. The Army Corps CHARTS program is collecting LIDAR coastal data in the spring of 2006. They plan to periodically collect new data for the dynamic coastal areas (schedule depends on funding). Having the baseline statewide data with periodically updated coastal data will give CRMC a very powerful data base for identifying potential erosion "hotspots" for mitigation, monitoring the movement of dredged material within the littoral system and controlling stormwater runoff.

Although many opportunities for waterfront redevelopment exist in the Metro Bay region, the shoreline communities of northern Narragansett Bay face the threat of floods and coastal storms, such as hurricanes. The challenge for these communities is to achieve their visions for economic growth on the waterfront while reducing the potential impacts of natural hazards and maximizing public safety and public access to the shore. Some of the aspects of floodplain management in the Metro Bay region involve developing more efficient and effective boat storage plans before a storm, as well as enhancing post-storm debris removal plans.

Storm surge prediction by URI Graduate School of Oceanography researcher in Ocean Engineering Dr. Malcolm Spaulding.

The Salt Pond Region SAMP points out the need for public education on coastal hazard issues. A homeowners guide on coastal processes with information on flood zone designations, building standards and RICRMP regulations is in draft form and will be published. (give me a release date and nag me). Maps delineating coastal features, shoreline change rates and shoreline structures have been completed for the south shore and Greenwich Bay. Coastal feature maps from photo interpretation with no ground truthing were done for the Metro Bay SAMP. Metadata needs to be completed for these coverages before they can be disseminated to the public.

The CRMC needs to continue to participate in the Hazard Mitigation Committee to improve the ways in which the State prepares for, reacts to, and recovers from a catastrophic storm. The state Hazard Mitigation Plan has recently been completed. (See http://www.crmc.ri.gov/news/pdf/ri_shmp.pdf). Continued commitment will also insure consistency with the RICRMP and SAMPs, and facilitate future changes to the RICRMP as a result of the Hazard Mitigation Plans

A significant amount of coastal properties within CRMC jurisdiction fall within FEMA designated flood zones. The Flood Insurance Rate Maps for coastal Rhode Island need to be updated. Properties that are vulnerable to flooding will soon be redeveloped in the Metro Bay SAMP area. In Greenwich Bay and other coastal areas throughout the state, older housing is being rebuilt, and usually expanded. The increase in marina capacity, especially in the urban and suburban waterfronts presents a potential hazard as well as substantial monetary losses in future storms. Marinas use flood zones for boat storage. CRMC is working with the marine trades industry to develop management practices for removing boats outside of the flood zones in a storm watch or warning without endangering lives. CRMC will work closely with RIEMA on updating the

Federal Flood Insurance Rate maps and SLOSH evacuation routes. Again, better topographic data is a key element in these studies.

Conclusion

Priority needs and major gaps:

√ The Salt Pond Region, Narrow River, Greenwich Bay and Metro Bay SAMPs outline the current and future research needs for hazard mitigation assessment. There is a need for better understanding of the correlation between oceanographic forces and shoreline response. Continuation of the mapping of nearshore environments in conjunction with the continued support for the beach profile network will provide important data for understanding sediment transport.

√ CRMC and the US Army Corps of Engineers need to continue to work cooperatively on the beneficial reuse of dredge material for both navigation and restoration projects. It is important to monitor sediment transport to measure the success of the primary project and the beneficial reuse.

√ There is a need for better topographic data to produce high resolution sensitivity models for flood hazards. Detailed data is needed for studying cumulative effects of filling in the flood plain, for creating the safest possible evacuation routes and for accurate Flood Insurance Rate Maps.

In lieu of a formal strategy, the CRMC will seek to take the following actions:

√ The CRMC will approach the RI Sea Grant program and NOAA Coastal Services Center to initiate LIDAR research along the RI shoreline.

√ Continue ongoing collection and maintenance of shoreline change data including regular updates of shoreline change rates are recommended.

√ Continue ongoing collection of nearshore and offshore bottom data, preferable in conjunction with other partners including the US Army Corps of Engineers, the Natural Resources Conservation Service, University of Rhode Island Department of Geosciences and Graduate School of Oceanography.

Ranking of Coastal Hazards:

The CRMC considers coastal hazards to be a significant issue with respect to Section 309 enhancement. However, given the current pressing need to resolve long standing dredging issues in Rhode Island's coastal waters, and the ongoing significant investment of staff time and other resources toward coastal habitat restoration, the CRMC ranks these two Section 309 tasks slightly ahead of coastal hazards at present. Therefore, for the purpose of the current Section 309 assessment, coastal hazards are considered a medium priority for enhancement by the CRMC. However, the importance of coastal hazards to Rhode Island should not be underestimated. The CRMC leaves open the possibility that coastal hazards, as a Section 309 enhancement area, could be quickly elevated to a high priority ranking from its current status.

Last Assessment		This Assessment	
High	_____	High	_____
Medium	__X___	Medium	__X____
Low	_____	Low	_____

ENERGY AND GOVERNMENT FACILITY SITING ASSESSMENT

Section 309 Programmatic Objectives

I. Enhance existing procedures and long range planning processes for considering the needs of energy-related and government facilities and activities of greater than local significance.

II. Improve program policies and standards which affect the subject uses and activities so as to facilitate siting while maintaining current levels of coastal resource protection.

Resource Characterization

The need for renewable energy has become increasingly prevalent. Well-balanced, diversified fuel energy resources, that include renewables, are essential to sustainable economic growth. Renewable energies are also indigenous and non-depleting sources of supply, which is positive for energy security. The present energy system, from extraction to use, is now held responsible for much of the man-made global climate change problem and that energy consumption is acknowledged as a cause of environmental damage. Therefore, alternative energy sources must be considered within the state, as well as neighboring states.

Status of Potential Energy Siting Facilities

Currently, the four cities in Upper Narragansett Bay (Providence, East Providence, Pawtucket, and Cranston) are developing waterfront management plans. The purpose of the undertaking is to articulate and frame a plan, vision and strategies to transform the currently underutilized waterfront along the Providence and Seekonk Rivers to a mix of land uses, including: commercial; office; medium and high density residential; entertainment and hospitality; restaurants; marinas; civic, and recreational uses, particularly those oriented towards the water.

The underlying goal is to ensure that the currently underutilized properties of the waterfront once again become vital economic resources for the state and the respective cities and that these revitalized properties remain sustainable over time.

The fact that the waterfront plans are already underway creates enormous pressure for existing energy facilities. Many of the cities and towns would like to displace these uses for more upscale land uses. Yet these facilities are critical to our economy and social well being. The oil ports in Providence and East Providence supply all of the oil and gas for Rhode Island and Southeastern Massachusetts. The proposed plans are putting serious constraints on current industrial practices that are located on the “working waterfront.” Therefore, waterfronts must be protected for the existing energy facilities.

Under our current SAMP for the Providence region our policies discourage expansion of LNG in this area. The cities within the region are very concerned what an

expansion within this area would do to the nearly four billion dollars of investment that is going into redevelopment. Many of these areas are Brownfields. They are concerned that developers will pull out of the waterfront if the present terminal is expanded.

Brownfields

Brownfields are real property, the expansion, redevelopment or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Brownfield sites can be any type of "real property," including residential, as well as commercial and industrial properties. Rhode Island's industrial history has left many historic, centrally located buildings and sites that are ripe for redevelopment. Advantages of Brownfields Redevelopment include the ability to reuse existing infrastructure, save money through tax incentives and government grants, take advantage of labor concentration, promote smart growth, reduce threats to health and the environment, clean up neighborhoods, and preserve architectural and historic beauty.

President Bush signed into law the Brownfields Revitalization and Environmental Act of 2001 on January 11, 2002. Rhode Island Senator Lincoln Chafee was a primary sponsor of the act, which provides $200 million per year for fiscal years 2002-2006 for grants to state and local governments to assess and restore contaminated Brownfields sites. The act provides legal protections for innocent parties, such as contiguous property owners and prospective buyers, thereby addressing liability concerns and encouraging redevelopment of Brownfields sites. The act also provides grants to local groups to "provide training, research, and technical assistance…to facilitate the inventory of Brownfields sites, site assessments, remediation of Brownfields sites, community involvement, or site preparation."

Given its industrialized heritage, Rhode Island contains several hundred Brownfields properties. Many of these sites represent significant opportunities for economic development, particularly large portions of the Providence and East Providence Waterfront, long stretches of the West Side of Aquidneck Island, and various sites that once housed the manufacturing facilities of industrial giants such as American Tourister, Gorham and Royal Mills. While all Brownfields sites do not possess this degree of economic potential, their redevelopment can nevertheless serve other beneficial and important interests including urban revitalization, affordable housing development and the provision of community services.

Rhode Island is recognized as a leader in brownfields cleanup and redevelopment. The RI Economic Development Corporation (EDC) has received numerous brownfields grants from the United States Environmental Protection Agency that enable the EDC to further remediate the sites. At the time Rhode Island received its original grants from EPA, there were virtually no private funding resources in the state to finance the cleanup of brownfields.

In 2000, Save The Bay was the first recipient of a brownfields loan from the

Brownfields Cleanup Revolving Loan Fund Pilot grant awarded to the EDC, along with the RI Department of Environmental Management, by the U.S. EPA. The redevelopment of the site – a former municipal dump at the southern tip of Fields Point in Providence – completed in May 2005, includes classrooms, exhibit areas, meeting rooms and administrative space. The waterfront site demonstrates principles of stormwater management, coastal buffer plants and salt marsh restoration.

Energy and Government Facility Siting (Brownfields) websites:

Rhode Island Brownfields Website: www.brownfields.state.ri.us

Environmental Protection Agency (EPA): www.epa.gov/brownfields

www.epa.gov/NE/brownfields/index.html

Citizen's Guide to Brownfields: www.uri.edu/ce/wq/has/html/has_brownfields.html

RI Department of Environmental Management:
http://www.dem.ri.gov/brownfields/default.htm

Rhode Island Historical Preservation & Heritage Commission: www.preservation.ri.gov

Rhode Island Economic Development Corporation: http://www.riedc.com/r/index.html

Management Characterization

1. Identify significant changes in the state's ability to address the siting of energy and government facilities since the last Assessment (e.g., new regulations, guidance, manuals, etc.). Provide the following information for each change:

- Characterize the scope of the change
- Describe recent trends
- Identify impediments to addressing the change
- Identify successes
- Energy Facilities

Liquified Natural Gas (LNG)

KeySpan LNG filed a lawsuit in federal court to clarify the permitting process for an upgrade of its 600,000 barrel terminal to a 525 MMcf/d sendout import facility at its Fields Point facility in Providence. The proposed KeySpan LNG upgrade would boost the facility's vaporization capacity to 525 MMcf/d from 150 MMcf/d, and would provide 375 MMcf/d of additional firm baseload supply of natural gas to Rhode Island and the greater New England region. KeySpan is the fifth largest distributor of natural gas in the United States and the largest in the Northeast. KeySpan requested that a federal court verify the appropriate process to be used by CRMC for its review. As part of the upgrade of its facility, KeySpan sought a determination from the CRMC as to the proposal's consistency with the Coastal Resources Management Plan.

In its suit, KeySpan pointed out that there are two types of review processes under Rhode Island's CRMC. In August 2004, the company filed an application under both processes -- for both a "Category B assent" under state law and a "CZMA consistency determination" under the CZMA. Both processes require thorough reviews of the project by the CRMC and give the state the power to grant or deny the application.

In June 2005, Federal Energy Regulatory Commission (FERC) denied KeySpan's application to upgrade its site from a storage facility to a marine import terminal. In August 2005, KeySpan filed an appeal of that denial requesting that the Secretary of Commerce find that the proposed dredging associated with the FERC-authorized LNG terminal is consistent with the objectives of the Act or is otherwise necessary in the interest of national security, and in light of such finding determine that a consistency determination by CRMC is not required under the Act or the Commission's orders.

The LNG terminal site would require very large LNG tankers to travel up the main shipping channel through Narragansett Bay. Siting an LNG tanker terminal at Fields Point in Providence would bring the risk of a terrorist attack resulting in a major fire that would burn buildings in the immediate vicinity. The cities of Fall River, Providence and East Providence, and numerous other coastal communities have come out in opposition to the project. In addition, the Rhode Island and Massachusetts Governors, Congressional delegations, and Attorneys General have also publicly opposed both projects.

At a time when East Providence is developing its waterfront and plans are proceeding to do likewise in Providence, the KeySpan proposal would harm these efforts, and disrupt boating activity in Narragansett Bay. However, at this time KeySpan is no longer pursuing this project.

Wind Power

CRMC is anticipating assessing wind power as an alternative energy source in the state. Its success depends on addressing policies and obstacles associated with choosing such an alternative. At this time, it is unknown how CRMC policies need to be amended in order to make decisions on future energy proposals; therefore, an assessment must first be conducted.

Offshore Oil and Gas

CRMC is an issue if the moratorium is lifted and lease sales occur in the Georges Bank area.

Wave Energy

CRMC has already begun the process of assessing wave energy as an alternative energy source in the state. A preliminary determination is being made for such a facility in the Pt. Judith area (Pt. Judith Harbor of Refuge). A wave-to-energy facility consists of an offshore floating steel frame structure comprised of a parabolic shaped steel wall (to focus wave energy), an oscillating water column/wave chamber, turbine, and electric

generator, moored to an array of twelve piles embedded into the seafloor. An encased electric cable will convey generated electricity to an upland interconnection location to be determined through future coordination with Narragansett Electric Co., requiring a small pad-mount transformer, in proximity to existing distribution feeders in the Pt. Judith area, utilizing existing utility pole structures. The cable will be located along the eastern side of the breakwater, and will landfall in proximity to the State of RI fishing access pier.

Conclusion

There exists a need to investigate, propose, and implement appropriate energy policies for a management plan regarding the protection of existing energy facilities in the coastal zone and a evaluation of expansion opportunities and the associated impacts. The CRMC and the RI Economic Development Corporation should continue to work together over the next 5 years to propose these policies.

This topic area, specifically brownfield redevelopment, has been elevated to a high priority because of increasing pressure to develop along the waterfront.

Energy and Government Facility Siting has been ranked as:

Last Assessment		This Assessment	
High	_____	High	__X___
Medium	_____	Medium	_____
Low	__X___	Low	_____

Energy and Government Facility Siting Strategy

Program Change

Changes to the Special Area Management Plans, as well as the Coastal Resources Management Program, must be made in order to address the immediate concerns of energy facilities both in and adjacent to Rhode Island. A new energy policy is necessary to protect existing energy sources from redevelopment that may try to displace these sources from beneficial use by the State. A further analysis and policy discussion needs to be developed for all petroleum product delivery and storage for the region.

Anticipated Effect

Consideration for and analysis of alternative energy siting facilities will allow for more options of energy choices in the state. Proposing policies to address such options will enable CRMC to regulate these alternatives in a comprehensive fashion.

Appropriateness

The need for renewable energy has become increasingly prevalent. Well-balanced, diversified fuel energy resources, that include renewables, are essential to sustainable economic growth. Renewable energies are also indigenous and non-depleting sources of supply, which is positive for energy security. The present energy system, from extraction to use, is now held responsible for much of the man-made global climate change problem and that energy consumption is acknowledged as a cause of environmental damage. Therefore, alternative energy sources must be considered within the state, as well as neighboring states.

General Work Plan

CRMC is currently working with the RI Economic Development Corporation to propose policies for a management plan regarding alternative energy sources.

Year 1-develop a management plan that has considered the following: trends analysis; alternative energy sources; and protection of existing energy facilities/sources. Collect information on possible expansion projects and impacts.
Year 2-refine policies to protect existing facilities and conduct an alternative siting assessment while completing the trends analysis; continue protecting existing energy sources. Propose language regarding expansion projects for all products
Year 3-based on trends analysis, develop possible alternative sites list; if necessary further develop proposed policy for protection of existing sites
Year 4-propose energy development plan and amend 1978 energy amendments.
Year 5-complete/finalize program; implement program; incorporate the new energy policy into NOAA's approved Coastal Resources Management Program as enforceable policy so that federal consistency may be applied.

Likelihood of Success

In light of existing proposed alternative energy projects, there is a desire on behalf of both the public and state government to be able to properly address these proposals through comprehensive review and alternative analysis. The suggestion of alternatives must rely on adequate regulations that address the current conditions of the proposed site, rather than outdated regulations reflecting land-use that has changed substantially since the regulations were written.

Estimated Costs

Category	**FY2007**	**FY2008**	**FY2009**	**FY2010**
Coastal Policy Analyst	$53,000	$53,000	$53,000	$53,000
Fringe	$12,000	$12,000	$12,000	0
Overhead	$5,000	$5,000	$5,000	0
TOTAL	$70,000	$70,000	$70,000	$53,000

Technical and Fiscal Needs

See estimated costs above.

PUBLIC ACCESS ASSESSMENT

Section 309 Programmatic Objectives

I. Improve public access through regulatory, statutory, and legal systems.

II. Acquire, improve, and maintain public access sites to meet current and future demand through the use of innovative funding and acquisition techniques.

III. Develop or enhance a Coastal Public Access Management Plan which takes into account the provision of public access to all users of coastal areas of recreational, historical, aesthetic, ecological, and cultural value.

IV. Minimize potential adverse impacts of public access on coastal resources and private property rights through appropriate protection measures.

Resource Characterization

Description of the current status of public access in Rhode Island

An important focus of the Coastal Resources Management Council is its long-standing dedicated efforts regarding public shoreline access in Rhode Island. Legislatively mandated since 1978 (GLRI 46-23-6(E)), identifying access ways (known as rights-of-way (ROW)) to the tidal areas of the State has been and remains a foremost concern of the Council. In fact it was the development and amendment of this section of the Council's legislation that satisfied requirements to receive federal approval of the Rhode Island Coastal Resources Management Program.

The basis for the Coastal Resources Management Council's responsibilities toward providing public access to the shore is established by the RI Constitution at Article I, Section 17:

> *"Fishery rights -- Shore privileges -- Preservation of natural resources. -- The people shall continue to enjoy and freely exercise all the rights of fishery, and the privileges of the shore, to which they have been heretofore entitled under the charter and usages of this state, including but not limited to fishing from the shore, the gathering of seaweed, leaving the shore to swim in the sea and passage along the shore; and they shall be secure in their rights to the use and enjoyment of the natural resources of the state with due regard for the preservation of their values;"*

While the Constitution provides shoreline privileges it does not provide for access to the shore. The RI General Assembly addressed this under the CRMC's enabling legislation at RIGL 46-23-6 (E) Right-of-ways:

> *"The council (CRMC) shall be responsible for the designation of all public rights-of-way to the tidal water areas of the state, and shall carry on a continuing discovery of appropriate public rights-of-way to the tidal water areas of the*

state."

> Given the CRMC's legislative mandate to provide access to the shore so that the public may enjoy the shoreline privileges provided by the Constitution, public access to the shore is clearly one of the agency's most important coastal zone management issues.

Past, ongoing and planned efforts to enhance public access

'Public Access to the Rhode Island Coast' was published in cooperation with the Rhode Island Sea Grant/Coastal Resources Center. It's a guide to parks, wildlife, refuges, beaches, fish sites, boat ramps, pathways, and views along the Rhode Island coast.

CRMC has established an "Adopt-an-Access" program. Currently, there are two CRMC designated ROWs that have since been adopted by the RI Saltwater Anglers Association (RISAA). CRMC will provide multilanguage public access signage and any necessary permitting (such as for parking) while RISAA provides Adopt-an-Access signage and will monitor the sites monthly to ensure they remain accessible. The CRMC is very interested in partnering with other groups or individuals to promote the program. CRMC has also published a multilanguage pamphlet entitled "A Code of Conduct While Using Public Rights-of-Ways to the Shore in Rhode Island" in response to balancing the public's right to access while respecting the rights of private property owners. The pamphlet addresses parking at ROWs, trash, noise, and other problems that irresponsible users of ROWs bring with them.

CRMC continues to designate ROWs throughout the state. Most recently, in one case, CRMC worked cooperatively with the Department of Environmental Management (DEM) to establish a public boat launching ramp in Providence at the Seekonk River. This site was the second public boat launching site in the city of Providence; the only other ramp was also a product of a CRMC permit stipulation that required boating access as part of the approved assent (this occurred prior to 2001). There are many public boating opportunities and the most recently designated site represents a public access opportunity in an urban environment. Furthermore, CRMC has continued to require/stipulate public access plans as a mandatory part of assents when new marinas, industrial/commercial developments, or significant expansions to existing marinas are proposed.

A recent success for public access is the Rhode Island Superior Court decision Cecil Sartor, Didier Sartor, William P. Kyros, Arthur Landy, Eva Landy, John C. Whistler and Mary Lovejoy v. Town of Barrington, No. 03-3985 (August 4, 2004) that stated parking on CRMC designated ROWs is permissible. An immediate benefit to the decision was that a parking area was established at one of the CRMC adopted ROWs.

The Council has completed various regulatory and legislative initiatives to coordinate its various public access functions. These include the development of a Public Access section of the Rhode Island Coastal Resources Management Program (Section 335), passage of legislation limiting liability to gross negligence for any Council-

designated ROW or any Council-stipulated access permit requirement, legislative penalties for obstructing ROWs, legislative requirements for municipal abandonment of ROWs, and the seeking of legislation to clearly define the state constitution's guarantee of lateral "access along the shore."

Additionally, the Council has implemented through its Harbor Management Program the ability to assist coastal municipalities in identifying and recommending for Council designation potential access ways to the shore. The harbor management planning process cuts across many levels of the Council's efforts in identifying and developing access opportunities to the tidal areas of the state: site identification, potential designation, development, and maintenance. As envisioned, this program has been highly successful as each of the approved and all of the harbor management plans (HMPs) in-progress includes a detailed public access section. These "chapters" of the local HMP not only involve the identification of sites for public use and designation, but go as far as incorporating site development and maintenance options based on the best potential use of a site. Further, the Council has revised its Harbor Management Program to require, among other issues, a comprehensive access planning element. It is also working with the Division of Planning and the State Planning Council to incorporate the revised program into the State Guide Plan as a separate planning element that all coastal municipalities will have to meet when developing comprehensive local plans of use.

The Council has also incorporated public access elements into its Special Area Management Plans (SAMP). The Greenwich Bay SAMP (adopted May 10, 2005) includes Section 760 Recreational Access to Greenwich Bay which identifies numerous public access opportunities including CRMC designated ROWs. The Metro Bay SAMP is currently being developed, however, its cornerstone element, the Urban Coastal Greenway (UCG), has already passed through a final staff level review. The UCG includes regulations that require shoreline public access throughout the Metro Bay region, which includes the cities of Cranston, Providence, Pawtucket, and East Providence.

Efforts to measure CRMC's progress in managing public access

The CRMC is participating in the National Coastal Management Performance Measurement System Data for Phase 1a: Public Access and Government Coordination has been submitted, and data for Phase 1b: Public Access and Government Coordination is currently being compiled for submission in July, 2006.

Extent and trends in providing public access (publicly owned or accessible):

Access Type	**Current Number(s)**	**Change Since Last Assessment**
State / County / Local Parks	18 state parks*	unknown
Beach / Shoreline Access Sites	10 state beaches*	unknown
Recreational Boat (power or non-power)	4 dinghy racks/docks; 9 boat launching ramps; 7 public docks; 1 public wharf; 1 canoe/kayak launching site;	unknown
Designated Scenic Vistas or Overlook Points	NA	
State or Locally Designated Perpendicular ROW	221 CRMC designated public rights-of-way to the shore	+1
Fishing Points	86 public boat launching sites‡	unknown
Coastal Trails/Boardwalks	4 hiking trails; 12 walkways; 12 boardwalks; 4 bike paths; 3 observation decks	unknown
ADA Compliant Access	11 handicap accessible ramps	unknown
Dune Walkovers	3 walkover structures (one is a pedestrian bridge that traverses water rather than a dune and the other two "walkover" rocky beach berms)	unknown
Public Beaches with Water Quality Monitoring and Public Notice and Number Closed due to Water Quality Concerns	120 licensed bathing facilities are monitored§	unknown
Number of Existing Public Access Sites	360 (some of which are designated CRMC ROWs)¶	unknown

*information obtained from: http://www.riparks.com/listing.htm

‡information obtained from: www.dem.ri.gov/programs/bnatres/fishwild/boatlnch.htm

§information obtained from: http://www.ribeaches.org/index.cfm

¶information obtained from: Allard Cox, M. (ed.). 2004. *Public Access to the Rhode Island Coast.* Rhode Island Sea Grant. Narragansett, R.I. 84pp.

Public Access Guide and website:

'Public Access to the Rhode Island Coast' was published in 1993 and updated in 2004 in cooperation with the Rhode Island Sea Grant/Coastal Resources Center. It's a guide to parks, wildlife, refuges, beaches, fish sites, boat ramps, pathways, and views along the Rhode Island coast.

1) Public Access to the Rhode Island Coast *Monica Allard Cox (ed.)* http://seagrant.gso.uri.edu/bookstore/index.html
2) Designation of Public Rights-of-Ways to the Tidal Areas of the State http://www.crmc.state.ri.us/pubs/pdfs/row2004.pdf
3) Public Right-of-Ways: CRMC's Designation Process http://www.crmc.state.ri.us/pubs/briefings/CoastalBriefingROW.pdf
4) A Citizen's Guide to Assisting in the Right-of-Way Designation Process http://www.crmc.state.ri.us/pubs/pdfs/ROWCitizenGuide.pdf

Management Characterization

To guarantee success in meeting its legislative mandate, the Council carries out a number of approaches to obtaining shoreline access in the state.

Category	**Changes since last assessment**
Statutory, regulatory or legal system changes that affect public access	**Significant** Moderate Insignificant
Acquisition programs or techniques	Significant **Moderate** Insignificant
Comprehensive access management planning	Significant Moderate **Insignificant**
Operation and maintenance programs	Significant Moderate **Insignificant**
Funding sources or techniques	Significant Moderate **Insignificant**
Education and outreach	**Significant** Moderate Insignificant
Beach water quality monitoring	**Significant** Moderate Insignificant

First, the Council has established a standing subcommittee responsible for the continued discovery and designation of these access ways. This subcommittee has met regularly (monthly) since 1978 and has designated as public 221 ROWs to the shores of the State in each of the twenty-one coastal municipalities. Roughly speaking, this figure represents slightly more than one (1) ROW for every two (2) miles of shoreline, as there are 420 miles of shoreline in Rhode Island. To ensure that these sites remain in public

use, without question and in perpetuity, the Council, on its own initiative, registers and records each public right-of-way decision with the Office of Secretary of State.

The Council has completed various regulatory and legislative initiatives to coordinate its various public access functions. These include the development of a Public Access section of the Rhode Island Coastal Resources Management Program (Section 335), passage of legislation limiting liability to gross negligence for any Council-designated ROW or any Council-stipulated access permit requirement, legislative penalities for obstructing ROWs, legislative requirements for municipal abandonment of ROWs, and the seeking of legislation to clearly define the state constitution's guarantee of lateral "access along the shore."

The CRMC has the authority to designate public ROWs to the tidal waters of the state (See Appendix E; R.I.G.L. 46-23.6). A CRMC public ROW designation clarifies the status of a public ROW and provides shoregoers with clear and legally defined pathways to the shore. The designation of public ROWs also ensures the preservation and protection of these access sites for subsequent generations of Rhode Islanders. The CRMC carries on a continuous process of discovery and designation of ROWs using a standing ROW subcommittee. Because of administrative and legal requirements, the ROW designation process is complex and requires a substantial investment of time and resources. Therefore, the CRMC typically takes a town-by-town approach to identify and investigate potential public ROWs. The CRMC designation process begins with a fact finding investigation and a title search conducted by the CRMC's legal counsel, usually at the request of a coastal city or town. In many cases, the CRMC's efforts are supplemented with research by the municipality. During the fact finding process, evidence pertaining to the existence of a ROW is gathered from land evidence records, deeds, tax assessor records, public works records, town documents, and court records. A visual inspection of potential sites is also made to gather evidence pertaining to the exercise of dominion over a potential ROW including maintenance, repair and upkeep. All evidence is reviewed for accuracy and relevance by the CRMC ROW subcommittee and presented at a public hearing in the town or city involved. If, based on the evidence gathered and public testimony received, the subcommittee determines with reasonable probability that a public ROW exists, a recommendation is made to the full Council to designate the site. If the full Council approves the ROW subcommittee's recommendation, then a final written decision is rendered containing factual findings and conclusions of law. If there is not appeal or after an appeal has been resolved in favor of the CRMC, then the decision is recorded in the land evidence records, and filed with the Secretary of State's Office.

Since 1978, the cumulative efforts of the CRMC have resulted in the review of over 337 potential ROWs and the designation of over 216 sites.

Once a public ROW has been designated, the public possesses a passage way to gain access to the tidal waters of the state. Like an easement, a public ROW relates to the

public's use, not the public's ownership. In other words, the public has the right to pass over and use the land in a manner consistent with the condition of the site no matter who owns it. When the CRMC designates a public ROW, it does not determine the ownership of the site. The CRMC is prohibited from addressing questions of ownership. Determining the ownership of a public ROW can be complicated and often requires court action. Frequently, if a site has been actively used by the public, the public may in fact own the site. The CRMC does not create "new" public ROWs, they must already exist. The CRMC merely recognizes and places an official designation on previously existing conditions. It is the landowner and/or a city or town which creates a public ROW; the CRMC merely identifies these sites. If the CRMC has not designated a site, it does not mean that a public ROW does not exist. In fact, a public ROW may exist, but the CRMC may not have enough information to legally designate it or the CRMC may not have investigated the site.

Once a site has been designated as a public ROW the CRMC prohibits any activities that would obstruct the public's use of these sites. The CRMC also pursues legal actions against individuals that block or impede the public's access at designated ROWs. In this manner, the CRMC protects and preserves these sites for the public's use. Once a public ROW has been designated by the CRMC, it cannot be abandoned by a city or town without prior approval of the CRMC (R.I.G.L.46-23-6.2). In addition, a public right-of-way that has not been designated by the CRMC, but is never-the-less a public way, cannot be abandoned without formal abandonment proceedings. Moreover, highways which have been designated to the public by the actions of a landowner or acquired by prescription, cannot be lost due to non-use and the public cannot lose its rights due to adverse possession.

Additionally, the Council has implemented through its Harbor Management Program the ability to assist coastal municipalities in identifying and recommending for Council designation potential access ways to the shore. The harbor management planning process cuts across many levels of the Council's efforts in identifying and developing access opportunities to the tidal areas of the state: site identification, potential designation, development, and maintenance. As envisioned, this program has been highly successful as each of the approved and all of the harbor management plans (HMPs) in-progress include a detailed public access section. These "chapters" of the local HMP not only involve the identification of sites for public use and designation, but go as far as incorporating site development and maintenance options based on the best potential use of a site. Further, the Council has revised its Harbor Management Program to require, among other issues, a comprehensive access planning element. It is also working with the Division of Planning and the State Planning Council to incorporate the revised program into the State Guide Plan as a separate planning element that all coastal municipalities will have to meet when developing comprehensive local plans of use. The Council has also incorporated public access elements into its Special Area Management Plans (SAMP). The Greenwich Bay SAMP (adopted May 10, 2005) includes Section 760 Recreational Access to Greenwich Bay which identifies numerous public access opportunities including CRMC designated ROWs. The Metro Bay SAMP is currently

being developed, however, its cornerstone element, the Urban Coastal Greenway (UCG), has already passed through a final staff level review. The UCG includes regulations that require shoreline public access throughout the Metro Bay region, which includes the cities of Cranston, Providence, Pawtucket, and East Providence.

The Coastal and Estuarine Land Conservation Program (CELCP) was established in FY 2002 as part of the FY 2002 Commerce-Justice-State Appropriations Act (P.L. 107-77). With NOAA financial assistance, a State CELC Plan was prepared to guide the state's process for identifying priority estuarine conservation projects for nomination to NOAA in a potential, future competitive grants program. In the meantime, the CRMC, the designated state lead agency, has actively supported three CELCP projects nominated for FY 07 consideration. Future CELCP projects will be evaluated and nominated for federal funding through the process established by this plan.

Several projects have been funded under the CELCP in Rhode Island: Rocky Point/City of Warwick ('02 and '03), Norman Bird Sanctuary ('04), and Town of Middletown ('05). $1,474,454 has been expended so far for the Norman Bird Sanctuary (23 acres) and Middletown project. $2,237,100 remains to be spent for City of Warwick (Rocky Point: approximately 26 acres).

These approaches therefore constitute the Council's coordinated public shoreline access program. A detailed description of the program can be found in Appendix E.

Conclusion

Priority Needs and Major Gaps:

Due to the CRMC's significant initiatives mentioned above, both those driven by Section 309 considerations, and those related to internal programmatic improvements, a strong management framework for public access exists in Rhode Island. Further, the local initiatives also discussed in this section lend credence to the notion that a longstanding tradition of public access is imbued in the state. Budgetary constraints continue to limit CRMC's ability to do more with its statutory jurisdiction over public ROWs in the state. Nonetheless, the efforts of both the CRMC's staff and the ROW subcommittee continue to result in new requests for review of potential ROWs

In consideration of the internal public access elements that have been incorporated into the RICRMP, the recent Section 309 accomplishments, and the various other initiatives mentioned in this section, public access appears to be an area of strength and stability. Based on the CRMC's well established approach to maintaining and improving public access in Rhode Island, public access is considered a medium priority enhancement area.

Regarding needs identified by the state to support public access initiatives, funding remains a chronic problem for the rights-of-way program. Current federal appropriations specifically earmarked for this task are level-funded. There is no state appropriation allocated to this task. Original funding for the CRMC ROW program was designated at $30,000. For the past seven (7) years, the CRMC's ROW program has been funded at $5,000. The reduced monies must still cover legal, stenographer, hearing officer, travel, advertising, and staff costs. This year, even with continuing town assistance in the form of legal research, the ROW process has been hindered.

The CRMC has only been able to designate, on average, less than 6 public ROWs per report year. This is primarily due to funding constraints, which, as above, includes comprehensive legal research, and time consuming public hearings (the purpose of which is to exhaust evidence), resulting in site designations that span reporting periods. The CRMC has had to reduce funding to the ROW program due to overall decreases in federal operating funds. Therefore, it is likely that due to further decreases in federal monies, it may be necessary for the CRMC to come close to zero-funding its rights-of-way program next fiscal year.

As state appropriations have become non-existent for this task, the CRMC is faced with using federal funding to cover operational costs, thereby losing such programs as the ROW designation process. Further, if one were to take into consideration the monetary cost of trying to purchase those CRMC designated public access areas at current market value, it would easily amount in the millions. Thus the state has reaped a high rate of return for monies expended on this program. By demonstrating how successful the CRMC's efforts vis-a-vis rights-of-way designations and its impact to the state's quality of life, the Council will continue to lobby for additional state appropriations, especially those appropriations earmarked for public shoreline access.

Last Assessment		This Assessment	
High	_____	High	_____
Medium	___X___	Medium	___X__
Low	____	Low	_____

OCEAN RESOURCES ASSESSMENT

Section 309 Programmatic Objectives

I. Develop and enhance regulatory, planning, and intragovernmental coordination mechanisms to provide meaningful state participation in ocean and Great Lakes resource management and decision-making processes.

II. Where necessary and appropriate, develop a comprehensive ocean resource management plan that provides for the balanced use and development of ocean resources, coordination of existing authorities, and minimization of use conflicts. These plans should consider, where appropriate, the effects of activities and uses on threatened and endangered species and their critical habitats. The designation of specific marine protected areas should be considered.

Resource Characterization

Resource or Use	Threat or Conflict	Degree of Threat	Anticipated Threat or Conflict
Fisheries	Stock depletion Disturbance to bottom from trawling	High	Ecosystem changes; negative impacts to local economies
Dredging			Environmental impacts, habitat disturbance
Drilling and transportation of oil and gas	Degradation of water quality and benthic substrate	Low due to moratorium on exploration	Habitat degradation, interference with migratory marine mammals, impacts on native species
Open ocean aquaculture	Competing uses of ocean resources	Medium	Habitat degradation, interference with migratory marine mammals, impacts on native species (eelgrass)
Wind energy	Competing uses of ocean resources	Unknown	Interference with fishing, birds, marine habitat

2. Changes in resources or relative threat to resources since the last assessment

Dredging

The last significant dredging of the Providence River Shipping Channel was completed in 1971. Since that time, a significant reduction in channel water depth and channel width has been documented, a result of sedimentation in the channel. The CRMC was the lead state agency responsible for coordinating the ACOE's efforts to maintain this channel's authorized navigable depths.

At the request of the Governor of Rhode Island, EPA and the ACOE evaluated the feasibility of designating one or more long-term dredged material disposal sites that could meet the future navigational needs of Rhode Island and southeastern Massachusetts. Building on the ACOE efforts performed for the Providence River & Harbor Maintenance Dredging Disposal Site Selection EIS, the project team conducted a survey of 450 navigation dependent facilities in 51 communities in Rhode Island and Massachusetts to identify current and potential dredging needs and the volume of dredged material associated with those needs.

While funding for a Dredge Material Management Plan (DMMP) has not been allocated by the Rhode Island Legislators despite repeated efforts, much progress has been made toward a comprehensive DMMP for Rhode Island. The most significant advancement has been the completion of an outline as well as draft sections of the plan. This outline has provided the "road map" that allows the CRMC to complete small portions of the plan as part of other ongoing CRMC projects, studies, or dealings with other agencies (namely the Rhode Island Department of Environmental Management (RIDEM)). The CRMC has work closely with RIDEM to create a dredge application review process that is unified, as required by the Marine Infrastructure Maintenance Act.

Drilling / Transportation of Oil and Gas/ Wind Energy

LNG issues have arisen in Long Island Sound (CT), Narragansett Bay (RI) and Mt. Hope Bay (MA) such that each pose a potential to impact the coastal resources of Rhode Island. Traffic patterns through RI waters, navigational concerns, and safety and security issues all surround LNG as it is being discussed for development or expansion. With rising oil and gas prices, liquified natural gas (LNG) and alternative energy sources are becoming more attractive. Massachusetts has received several LNG terminal proposals.

Additionally, wind energy is gathering steam as a potential source of energy, and wind farms are being discussed for the waters off of Point Judith. Coupled with the experiences of wind farms off Massachusetts waters, this issue is ripe for management between the two states. Rhode Island has policies to build the capacity necessary to address wind energy structures in a cohesive manner. The emergence of this issue has prompted CRMC to review ocean uses and policies in a more general sense. CRMC currently has regulations addressing the potential activities (see: Energy Related Activities and Structures: Section 300.8; Commercial/industrial Structures: Section 300.3; Filling in Tidal Waters: Section 300.10; and/or Inland Activities and Alterations that are Subject to Council Permitting (such as power generation): Section 320 http://www.crmc.ri.gov/regulations/programs/redbook.html). This issue is also addressed in the Energy and Government Facility Siting section.

Open Ocean Aquaculture

See Aquaculture section.

Management Characterization

1. Ocean management programs and initiatives developed since 2001 assessment.

Ocean Management Initiative Type	**Significance of Change Since Last Assessment**	**Initiative**	**Specify Funding Source**
Statewide comprehensive ocean management statute	Low	CRMC; NROC formed by Governor	NA
Statewide comprehensive ocean management plan or system of MPAs	**Significant**	Newport Harbor MPA (in prep)	NA
Single purpose statutes related to ocean resources	Moderate	CRMC, et seq.; DEM et al	
Statewide ocean resources planning/working groups	Moderate	RI Bays and Inland Waters Coordination; CRMC	In-kind contributions from participating agencies
Regional ocean resources planning efforts	Moderate	Northeast Regional Ocean Council	In-Kind.
Ocean resource mapping or information system	-----	NCRS-led subaqueous soil and sediment mapping project	Earmark to URI
Dredged Material Management Plan	**Significant**	Dredging Working Group	NA/309
Habitat research, assessment, monitoring	**Significant**	Wetlands inventorying; Trust Fund (state legislation)	State
Public education and outreach efforts	Significant	CRMC PR	-----

Aquatic Nuisance Species Management Plan	**Significant**	Aquatic Nuisance Working Group	

Development of an Aquatic Nuisance Species (ANS) Management Plan for Rhode Island

CRMC has requested the assistance from the RI Natural History Survey and the University of RI's Department of Natural Resources Science in drafting the Aquatic Nuisance Species Management Plan for Rhode Island. A significant amount of information and data on aquatic species in Rhode Island currently exists that should be used in the development of such a plan. Staff at both the Natural History Survey and URI is willing to donate their time to this project, however, gathering and integrating this information into the RI ANS Management plan is a significant undertaking. Funding for an intern and a database manager will be necessary in order to complete this task.

Using data and information gathered by RINHS staff and other assistants, the appropriate issues such as Problems and Concerns; Management Objectives and Actions; and a Summary of Research Activities will be addressed in the management plan. As the Rhode Island Natural History Survey is the central repository for biotic data in Rhode Island (for more information about the content of the RINHS data sets, see: http://www.uri.edu/ce/rinhs/database/db_biota.htm), the RINHS Data Manager, will work with staff to provide information on ANS presence and distribution in the state.

2. For identified changes, summarize the change, specify whether it was a 309 or other CZM driven change and specify funding source, and summarize the effect in terms of program outputs and outcomes.

Dredging

A working group consisting of representatives of Federal and state agencies, members of local lobster, shellfish and fishing associations, recreational and commercial boating/shipping interests, members of local universities with knowledge and expertise in environmental or navigational issues and other interested members of the public was established. The working group assisted in the identification and refinement of the factors that should be used in the initial screening efforts. Additionally, the National Marine Fisheries Service, U.S. Fish & Wildlife Service, Rhode Island Coastal Management Resource Council and Massachusetts Office of Coastal Zone Management were requested and agreed to become cooperating agencies for the project evaluation and EIS development.

The immediate problem of marinas and other water dependent facilities with large volumes of dredge material that requires environmentally sound and reasonably priced disposal has been mitigated until at least 2013. As a result of CRMC's persistence, the state dredging window has been modified to allow fourteen weeks of dredging per year, an increase from eight weeks. The dredge methodology and standards for various

locations have been developed as performance standards are incorporated into the permits issued by CRMC. There are now standard testing protocols that are required for all dredging applications and the sample location requirements have been developed, although the existing agreements are being refined.

In addition to the items listed above some specific accomplishments are:

- Development of confined aquatic disposal cells (CAD cells), via the Providence River project, that are under state control for use as disposal sites for all state and private projects. One of CRMC's functions in overseeing the project is the ability to modify the Providence River Project to allow CAD cell disposal for almost any contaminate level sediment for approximately 60,000 CY per year for the next eight years;
- Public outreach efforts with non-profit organizations (e.g., Save The Bay) that explained in detail the CAD construction and disposal monitoring that have been utilized (and will continue) so that they now agree that CAD cells can be utilized for environmentally sound dredge material disposal with appropriate controls;

Enactment of the Marine Infrastructure Maintenance Act of 1996 has added substantially to the CRMC's authorities and responsibilities. As stated in previous section 309 grant applications, the CRMC has secured some state funding to study pre-identified in-water disposal sites as required by the Act. As a result, the CRMC was able to complete a field research project in 1999 through SAIC, an environmental consulting firm.

In addition, the ACOE process for completing an Environmental Impact Statement (EIS) for the maintenance dredging and disposal of sediments from the Providence River and Harbor Shipping Channel has provided the CRMC with the framework for a dredged material management plan, upon which much of the CRMC's work has derived.

If the CRMC continues to successfully implement other mandates of the Act, Rhode Island will finally have both short- and long-term solutions to its severe dredging problems. However, no additional CRMC staff or funding was included in the Act. The Council's planning staff has therefore been addressing the immediate requirements of the Act at the expense of other programmed planning tasks.

The ocean resources work plan will generally follow the current management practices employed by the CRMC for dredging and dredged material management. That is, the CRMC has developed a management program for the use of the CAD cells, worth that proposes the use of the CADs for disposal will be managed under this program. Additionally, the same practices will be employed for disposal at the regional site.

Work plan elements

- All marinas now can perform maintenance dredging of the facility with a reasonable disposal cost when using the CAD cell option. Many marina

owners still feel that the fee for doing so is too high and the state should provide the facility at no cost. However, the CRMC regularly receives calls from facilities in other states wanting to dispose into the CAD as the fee charged by the CRMC is inexpensive as compared to their respective states. The CRMC is charging only the cost of constructing the CAD volume and a $0.75 fee for monitoring and supervision. More public outreach and education is required in this area;

- Designation of an offshore site for long term dredge material disposal was completed. The Rhode Island Sound site has been designated by the Environmental Protection Agency (EPA) for long term (twenty year) dredge material disposal;
- Funding sources (CAD fees) have been developed and legislation has been submitted to allow use of these funds for dredged material management, projects, and long-term monitoring;
- Current work is being done with a state dredging team, and specifically the Rhode Island Economic Development Council, to find a site for an upland/beneficial reuse site for dredge material. Discussions have also been conducted with the EPA to fund a pilot project in conjunction with the University of Rhode Island and the Rhode Island Marine Trades Association for dredge material remanufacture of soil products; and
- CRMC worked with the US Fish & Wildlife on the Sachuest Restoration Project (Middletown, RI) which involved landfill remediation utilizing dredge material to construct a salt marsh and, furthermore, cap old landfill. This project readily demonstrates the need for and feasibility of dredge material reuse in RI.

Over the next 5 years, the Council will focus its ocean resources management as the following:

- Public outreach on the use and management of the CAD cells;
- Development of a monitoring program for the CAD cells;
- State Dredging Team/EDC coordination to locate upland disposal sites, as well as coordinate a program that explores the remanufacturing of dredged materials; and
- Investigate additional CAD cell locations.

MPA: Newport Harbor Marine Protected Area

The CRMC is currently taking steps to establish a Marine Protected Area in Newport Harbor for the purpose of protecting all wooden non-motorized shipwrecks within the two-square mile area consisting of that portion of Newport's outer harbor in the vicinity of the Naval War College, the Pell Bridge, and Brenton Cove. Furthermore, a 0.66 square-mile Restricted Zone within the NHMPA will also be established for the

purpose of restricting access to this zone or parts therein during time periods specified by the CRMC. The CRMC will establish Restricted Activity Periods in consultation with the RI Historical Preservation and Heritage Commission (RIHPHC) and the RI Marine Archeological Project (RIMAP) to provide safe conditions for underwater archeological activities and to protect and preserve shipwrecks, their cargoes, and artifacts during periods of archeological investigation. Only those persons authorized by the CRMC may be within the Newport Harbor Restricted Zone during Restricted Activity Periods.

Rhode Island has a larger fleet of Revolutionary War shipwrecks than any other state. The ships lost include those from the British Royal Navy and transport service, the Continental Navy, American privateers, and many commercial vessels. Among the British transports sunk in Newport Harbor in 1778 to avoid capture by a threatening French fleet was the Lord Sandwich, which had previously been Captain James Cook's Endeavour. The Endeavour is of great historical significance, having been Cook's vessel when he made his first voyage of discovery to the Pacific between 1768 and 1771. Recent underwater archeological investigations in Newport Harbor by the RI Marine Archeology Project (RIMAP) have resulted in the discovery of several shipwrecks that fit the description and location of the British ships sunk in 1778. Research conducted by RIMAP at the Public Records Office/National Archives in London in January, 1999 indicated that the Endeavour was among the group of vessels sunk in 1778. The RI Historical Preservation and Heritage Commission considers the Revolutionary War fleet to be the highest priority underwater survey in the state because of its historical importance and attractiveness to looters. At least one known case has occurred where RIMAP divers found a Revolutionary War era cannon wrapped in heavy lines that could have been used to lift the cannon from the submerged lands of Newport Harbor. As a first step toward protecting the Revolutionary War fleet, the State of Rhode Island sought and was granted custody of all wooden non-motorized vessels in a two-square mile area of Newport Harbor by a federal judge in March, 1999. But despite current state and federal preservation laws, Rhode Island's shipwrecks suffer continuing theft and vandalism. In order to rectify this situation and provide continued protection for the Revolutionary War fleet and all other non-motorized wooden vessels within the two-square mile area established by the federal court ruling, the CRMC is making progress to enact a Marine Protected Area and a Restricted Zone in Newport Harbor.

When enacted, the language authorizing an MPA will read as follows:

The CRMC hereby establishes a Marine Protected Area and a Restricted Zone to protect all wooden non-motorized shipwrecks within a two-square mile area of Newport's outer harbor. As many of the shipwrecks within this area are Revolutionary War era vessels, they are of enormous historical significance to the citizens of Rhode Island and the United States in general. Further, as it is known that Captain James Cook's Endeavor, which was among a group of vessels sunk by the British within this two-square mile area during the Revolutionary War, the need to protect the shipwrecks within this area has great international significance. As the legal custodian of these shipwrecks, the State of Rhode Island is responsible for their protection. The RI General Assembly recognizes the public interest in the state's archeological resources in RIGL 42-45.1-2 whereby it:

"declares that the public has an interest in the identification,

interpretation, preservation, and protection of the state's archaeological resources including underwater historic properties situated under the navigable waters and territorial seas of the state; that the public has a right to the knowledge to be derived and gained from a scientific study of these resources; and that therefore it is the purpose of this chapter to provide that activities for the identification, preservation, excavation, study, and exhibition of the state's archaeological resources be undertaken in a coordinated and organized manner, with due consideration given to other significant natural and man-made environmental assets, for the general welfare of the public as a whole."

It is prohibited to recover, possess, alter, destroy, or handle by any means, any wooden non-motorized shipwrecks, their cargoes and artifacts within the Newport Harbor Marine Protected Area and the Newport Harbor Restricted Zone. Any person possessing a valid RIHPHC or CRMC permit for the purpose of conducting underwater archeological activities within the NHMPA or NHRZ is restricted to those activities stipulated by such permits. Any violation thereof shall subject the violator to the penalties established by this regulation.

Conclusion

Ocean management continues to evolve in Rhode Island. The CRMC's water type designations and associated policies provide one level of ocean management by establishing preferred and prohibited uses of ocean and coastal areas. However for dredged material management, some specific uses need to be addressed and appropriate disposal sites designated. Although progress is being made, a final plan that does not include information on the location of at least one in-water dredge disposal site would be egregiously incomplete. Sites supporting other uses, including established fishing areas, diving spots, and spawning grounds, also need to be taken into account.

Since the CRMC has an existing framework for designating uses and as a result new legislative mandates, the CRMC is the most appropriate agency for ensuring the balanced use and development of Rhode Island's ocean resources. The primary obstacle to the successful development and implementation of a much-needed and legislatively mandated dredging program which would build upon the existing "Redbook" framework and complement the CRMC's efforts in the areas of aquaculture and habitat restoration, is a lack of funding and staff resources.

Needs have been identified for the CRMC's new Aquatic Nuisance Species (ANS) Management Plan. Funding is needed to provide staff assistance with the following components:

- Identifying and summarizing ANS research activities in Rhode Island
- Gathering data on the presence and impact of aquatic nuisance species in Rhode Island, including:

    - Marine and estuarine species
    - Freshwater species
    - Wetland species
- Identifying and summarizing ANS monitoring programs in Rhode Island
- Identifying and summarizing ANS outreach and educational programs in Rhode Island

While the previous assessment characterized ocean resources as a high priority enhancement area, due to recent initiatives and CRMC's management of the CAD cells pertaining to the Providence River Dredging Project, coupled with the recent legislative mandates, ocean resources has become a medium priority area for enhancement. Economic and political concerns, in addition to obvious environmental and resource issues associated with Rhode Island's dredging needs, have resulted in CRMC's leadership role in which numerous elements for the management of dredged material are being developed.

Last Assessment		This Assessment	
High	__X__	High	_____
Medium	___	Medium	__X___
Low	___	Low	_____

Ocean Resources Strategy

Program Change #1: Aquatic Nuisance Species Management Plan

Description of program change:

A management plan to assess the presence/absence of aquatic nuisance species in RI's coastal waters.

Anticipated Effect:

The interest in creating a management plan for invasive species in Rhode Island's coastal marine waters was based on three factors: 1) the growing scientific evidence that invasive non-indigenous species are a significant potential threat to coastal marine ecosystems and the economic activities they support; 2) the lack of a specifically addresses non-indigenous species in Rhode Island; and, 3) the lack of a regulatory/management framework to address the problem of invasions by non-indigenous species. Government agencies and academic programs are involved in drafting a management plan because of its potential to produce data on the current status of non-indigenous species, provide a basis for creating a comprehensive database of non-indigenous species in Rhode Island's coastal waters.

General Work Plan:

The Rhode Island Aquatic Invasive Species Management Plan will outline a 5-year work plan that recommends solutions to specific problems posed by invasive aquatic species in the state. Creating such a plan will consist of: 1) attending meetings of various committees to record complete and accurate minutes, and participate in discussions as required; 2) conducting extensive literature research, including existing state aquatic invasive species management plans, and applicable scientific, legal, and other sources; 3) interviewing various scientific, legal, and resource management specialists, recording complete and accurate notes; 4) develop a working draft of the management plan from the various sources listed here; 5) submit copies of working draft to members of RI Invasive Species Work Group for comments; and, 6) produce final draft based on changes recommended by the Work Group.

Likelihood of Success:

Upon its approval by the Federal Invasive Species Task Force (the ANS Task Force), the Rhode Island Aquatic Invasive Species Management Plan will qualify the state for federal funds to implement projects identified by the plan. The ANS Task Force is authorized by the National Invasive Species Act (NISA) to approve state and regional management plans that implement federal goals to address the problem of aquatic invasive species. The Rhode Island Aquatic Invasive Species Management Plan will be consistent to the extent practicable with other plans that have been developed for states or provinces in the northeastern region of the United States and Canada. The Rhode Island Aquatic Invasive Species Management Plan will become an integral part of a coordinated effort by the Northeast Region Aquatic Nuisance Species Panel (established in 2001 via approval by the ANS Task Force) to address the problem of aquatic invasive species in the region.

Estimated Costs:

100 hours of student labor @ $20/hour	$2000
25 hours of the RINHS Database Manager time @ $75/hour	$1875
Total Funds Requested	$3875

Technical & Fiscal Needs:

The majority of future research needs entail a complete analysis of Narragansett Bay biodiversity. This includes the development of a comprehensive bibliography of existing research and merging preexisting data sets with the other studies within the same research area. For example, different departments in the University of Rhode Island (the Graduate School of Oceanography, Biological Sciences, Fisheries, etc) have been conducting survey studies, often for decades. These may be focused on one or a few

species, yet still offer tremendous complementary value. Individual researchers at URI as well as other academic and research centers also may have data sets that would be of great value. Hopefully, an effort can be made to attempt to compile and synthesize these various resources toward the final goal. Further effort should be put into filling in those gaps that remain, especially in more natural habitats.

The largest research need in the growing field of invasive/non-indigenous research is a tremendous increase in financial support and basic development of taxonomic resources. The field of taxonomy, central to the study of diversity and the impact of non-indigenous species, is a dwindling field that made this study much more laborious than necessary. There are few experts on the vast array of taxa found in our seas, and these researchers are often too overworked to be easily available to take part in important endeavors such as this RAS. Much of the data from specimens incorporated into this report took well over eighteen months to finalize and more still is pending further analysis. The large numbers of species labeled cryptogenic in this report particularly point to the lack of a proper body of literature to turn to for a thorough analysis of biota. Without this framework of knowledge, even the most comprehensive field survey will not provide the necessary information to researchers and managers.

Program Change #2: Marine Resources Development Plan: Tri-State SAMP
(See Special Area Management Plan section)

AQUACULTURE ASSESSMENT

Section 309 Programmatic Objectives

I. Enhance existing procedures and long range planning processes for considering the siting of public and private marine aquaculture facilities in the coastal zone.

II. Improve program policies and standards which affect aquaculture activities and uses so as to facilitate siting while ensuring the protection of coastal resources and waters.

Resource Characterization

1. The State's marine aquaculture activities since the last assessment have included the following:

- Amount of acres leased for aquaculture activities has increased;
- Increased Legislative support through the Rhode Island General Assembly's Special Commission on Aquaculture; and
- Implementation of the Rhode Island Aquaculture Initiative, an oversight committee which has funded such activities as research activities, mini-grants, a website, and a mapping project.

The commercial aquaculture industry in Rhode Island is characterized by small-scale molluscan shellfish operations located in Narragansett Bay, the coastal salt ponds along the state's southern coast, and a single salt pond on Block Island. Approximately seventy acres (or twenty-two farms) of coastal waters are currently under lease to fifteen aquaculture operations. The individual lease sites used to cultivate shellfish range in size from 0.06 acres to 4.5 acres, and the average size is just over 2 acres. Currently, sites range from a quarter acre to fifteen acres in size. The total amount of the state's coastal waters that are permitted for use by the aquaculture industry represents a small portion of the total resource. Narragansett Bay contains approximately 65,000 acres of tidal waters, and the coastal salt ponds collectively add over 5000 acres.

The total farm gate value of aquaculture products for the year 2000 in Rhode Island was $314, 977. This represents a 47% increase over the previous year. In 2004, the total farm gate value of aquaculture projects was $572,994, a 1.6% increase over the previous year. The leading species produced during 2000 were the American oyster *Crassostrea virginica,* and the hard shell clam, or, quahog *Mercenaria mercenaria.* The farm gate value for the American oyster was $294,000 while quahog production was valued at $18,000. In 2004, the farm gate value for oysters was $568,717 while the quahog production was valued at $3,696. Although they do not currently make a notable contribution to the aquaculture production in Rhode Island, the following shellfish species are currently permitted for cultivation among the various aquaculture lease holders:

- bay scallop *Argopecten irradians*
- soft shell clam *Mya arenaria*
- European oyster *Ostrea edulis*
- razor clam *Ensis americanus*

While aquaculture in Rhode Island has historically focused on shellfish cultivation, technological advances are currently setting the stage for coastal aquaculture to eventually "evolve" from the salty waters of its birth to a terrestrial habitat. Land based culture systems have been developed for raising finfish from hatchlings to harvest size in tanks and raceways housed in shoreside fish farms. Although neither of them is currently operational, two land-based finfish culture operations were recently permitted by CRMC. One operation is currently inactive due to economic constraints related to slower than expected growth rates of the juvenile flounder being cultivated. The other operation is still seeking the necessary financing needed to begin construction.

The shellfish sector of the aquaculture industry in Rhode Island has also begun to move landward. CRMC approved a permit for the first land based shellfish hatchery in the state in 1999. The hatchery began operating in that year, had some initial production, but fell on hard times due to internal problems. Although the hatchery no longer exists, Roger Williams University now has funding for a hatchery through a program initiated by Senator Reed.

Despite the initial difficulties facing the fledgling land-based sector of the aquaculture industry, support remains high from various sources. Legislative support has been strong for the past few years through the Rhode Island General Assembly's Special Commission on Aquaculture. And a historic source of opposition to aquaculture in general, commercial fishing interests, was especially supportive of the shellfish hatchery, as most of the shellfish seed produced at the hatchery was earmarked for re-populating portions of Narragansett Bay with commercially valuable species of shellfish. CRMC is currently working with the US Department of Agriculture and the DEM's Division of Agriculture to permit a freshwater aquaculture facility, with two more proposed.

The Rhode Island Aquaculture Initiative was funded in 2002 with $1.42 million. The Initiative has formed an executive committee made up members from the fishing and aquaculture industries, academia, and regulatory agencies. The committee has funded research activities, mini-grants, a website, and a mapping project (see www.crmc.ri.gov).

2. Two major areas of concern in Rhode Island aquaculture are environmental concerns, namely the virus MSX and the introduction of invasive species to Rhode Island waters. The virus MSX, which infects and slowly kills both cultivated and wild oysters, is now ubiquitous in Rhode Island's coastal waters. It is impractical to attempt to treat the disease. Outgrowing it appears to be the best solution to maintain a profitable shellfish aquaculture industry. MSX is harmless to humans, and it typically takes two to three years to kill oysters once infected. In order to discourage its further spread in the state's coastal waters, DEM requires a disease-free certification to accompany all

shellfish seed brought into the state for planting by aquaculturists.

In addition, the introduction of non-indigenous species into Rhode Island's waters is prohibited. And moving cultivated shellfish between dislocated sites within a coastal water body is also strictly regulated. The state tries to keep the disease as localized as possible once its presence is confirmed at a given site. Dermo and JOD are two other shellfish diseases that are also present in Rhode Island's coastal waters They effect the aquaculture industry in a manner similar to MSX, and the resultant management approach to them emulates the approach to MSX.

In response to address the disease problems, CRMC was mandated by the Legislature to create the CRMC Biosecurity Board. The Board's members include: URI pathologist, RI State veterinarian, the Chairman of the CRMC, and representatives from the following: aquaculture industry, DEM, fishing industry, Department of Health, and Roger Williams University.

Management Characterization

CRMC's regulatory authority

Aquaculture operations conducted in tidal waters are governed by existing statutes under Rhode Island General Laws §20-10, entitled Aquaculture. These statutes identify the CRMC as the primary agency for administering permits and leases within tidal waters for the purpose of conducting aquaculture activities. The CRMC is enabled through the legislation to promulgate rules and regulations concerning aquaculture which are found in Sections 160 and 300.11 of the RICRMP.

In commenting on problems confronting the aquaculture industry in Rhode Island, the previous Section 309 report noted: *"Multiple user conflict is the single most serious problem that the marine-based aquaculture industry faces today in Rhode Island. Opponents to these aquaculture operations cite navigational concerns and gear conflicts with existing commercial and recreational fishing activities as cause to prohibit any type of aquaculture within tidal waters...When properly sited, aquaculture operations can be compatible with existing activities without unnecessary interference while maintaining the public's right to have access to and use of the coastal resources. However, the major impediment for Rhode Island at this time is the nonexistence of an aquaculture management plan for tidal waters. Such a plan would identify acceptable areas for conducting aquaculture activities while providing the industry with optimum sites for growing marine species."*

Many advances toward developing such a plan, and initiating other actions to promote a viable aquaculture industry in Rhode Island have been made since that time. Due to increased communication among the major players of the aquaculture industry, user conflict, for example, is no longer an issue.

Several recent changes in CRMC's regulation and management of the aquaculture industry reflect recommended actions from the aquaculture strategy part of the previous Section 309 report. In that report, Work Task I called for the development of a state-wide

management plan for siting aquaculture facilities in state waters. The most significant change made by CRMC toward achieving that goal - and all other work tasks related to aquaculture - was the hiring of a full time Aquaculture Coordinator.

The Aquaculture Coordinator is responsible for:

- coordinating aquaculture responsibilities among the various agencies;
- updating CRMC policies;
- working with NGOs on issue of concern related to aquaculture;
- taking charge of CRMC's aquaculture permitting;
- pursuing grant monies to improve aquaculture permitting and monitoring; and
- acting as a resource within CRMC and for other state agencies on aquaculture issues.

To date, some of CRMC's accomplishments that are directly related to having an Aquaculture Coordinator on staff include:

- MOUs and other working arrangements have been forged between CRMC and other state regulatory agencies, and with state and private universities;
- new policies on commercial viability permits;
- an new educational/research permit; and
- new policies for shellfish seed nursery upwellers in recreational boating docks.

Another change that has taken hold in CRMC is the establishment of a working group on fisheries and aquaculture which is chaired by the Aquaculture Coordinator. Among others, this group consists of representatives from the various sectors of the commercial and recreational fisheries in Rhode Island. Academics, the aquaculture industry, and other state agencies are also represented. What was initiated as a conduit for communication between CRMC and stakeholder groups, has become a forum for developing regulations that address issues concerning both aquaculture and fisheries interests.

Finally, the Aquaculture Coordinator is working toward adding a new fisheries section to the RI CRMP. This has resulted from the recognition fostered by working with stakeholder groups, that certain issues such as wet storage of shellfish, do not fit into existing aquaculture regulations. In addition, the fishing industry, once an objector to aquaculture, has since embraced the practice and is using aquaculture technologies to enhance their fishery. Individual fishermen are now using leasing land for aquaculture farms. As a result, CRMC is taking a leading position in an area that was previously not addressed by the CRMP.

Aquaculture Related Industries

It is the other aquaculture related industries in Rhode Island that are the largest contributors to the state's economic bottom line. These industries include distribution of aquaculture product (fish and shellfish), and the manufacturing of aquaculture products to be used on farms. There are a number of small privately held companies in the state that fit into this category. These companies did a gross total of $5,500,000 in business in the

state, for no net increase from the 2003 numbers. These companies employ 25 full time employees, a decrease of 15% from 2003.

Not only do these companies serve local and regional farmers, but they also export internationally. This increase is especially impressive when the fact that one of the companies doing business in the state who contributed to this report two years ago continues to decline to contribute to this report this year. The aquaculture-associated industries within Rhode Island have contributed to the economic well being of the state. As the industry grows, in Rhode Island, the nation, and the world, this sector of the industry will continue to contribute economically.

The CRMC, Department of Environmental Management (DEM), and the Department of Health (DOH) continue to work closely together during the year. The staff members who deal with the day-to-day regulations concerning aquaculture in Rhode Island continue to work toward streamlining the permitting process. The staffs are also active in continuing to monitor the industry and are able to respond quickly to unforeseen contingencies that may arise.

The CRMC now has all of its management plan, regulations and applications on the internet. The agency is making a major push to continue its effort to continue to provide access to all of the necessary documents in as easy format as possible. During 2004, the CRMC aquaculture application was continually updated to provide more information for the applicant and to clarify and simplify the process as much as possible (see: www.crmc.state.ri.gov). From the CRMC home page clicking the "project" button will bring you to a page where if you click on "Aquaculture" will bring you to a page with information and links to Rhode Island aquaculture related sites. Clicking on the "application" button on the CRMC home page will bring you to a page that has a downloadable complete CRMC aquaculture application package. Back to the home page if you click on the "publications" button will bring you to a page that has the past 4 years CRMC Aquaculture Report available in a downloadable format. CRMC is committed to providing information and forms via the internet to make applying for all CRMC permits easier for the public.

Conclusion

Aquaculture in Rhode Island is a small, diverse and very dynamic industry which is making a real contribution to the economic health of the state. The companies, farmers and universities involved will readily admit that the situation could be a great deal better, but the are showing their belief in the future of the industry by investing time and capitol towards increasing their competitiveness now and into the future. Aquaculture in Rhode Island is an industry that is taking advantage of the state's assets, its clean waters, its many universities and a well trained populace, and contributing to the economic health of the state. The industry is showing its belief in the future by making investments to ensure its continued competitiveness.

RI's most serious aquaculture management needs have been minimized (i.e., user conflicts) through mapping suitable sites to conduct aquaculture operations, establishment of working groups, and the work of the Aquaculture Coordinator. There will be recurring issues dealing potential diseases from viruses affecting shellfish but a program is in place to deal with the health concerns. While much has been done for tidal

waters, there will be the probability of future operations for finfish going deeper into marine waters and that may pose a future challenge.

During the last assessment, the CRMC designated aquaculture as a high priority and devoted significant effort to addressing pressing issues associated with a nascent growth industry. This is made clear in the summary description and in Appendix C of the Assessment. Because much was accomplished, aquaculture has been downgraded to low priority. The Aquaculture Coordinator that will continue to keep the program on track.

Last Assessment		This Assessment	
High	___X___	High	_____
Medium	_____	Medium	_____
Low	_____	Low	___X___

MARINE DEBRIS ASSESSMENT

Section 309 Programmatic Objectives

1. Develop or revise programs that reduce the amount of marine and/or lake debris in the coastal zone.

Marine / Lake Debris Characterization

1. The table below summarizes some of the impacts from marine debris:

Type / Source	Impact Level	Type of Impact
Cigarette butts	Significant	Aesthetic
Plastic	Significant	Detrimental to aquatic life; aesthetic
Balloons	Significant	Detrimental to aquatic life; aesthetic
Glass / bottles	Moderate	Aesthetic
Metal / cans, lobster traps, pipes	Moderate	Aesthetic
Paper / packaging	Moderate	Aesthetic
Wood	Moderate	Aesthetic
Rubber	Moderate	Aesthetic
Cloth	Insignificant	Aesthetic

The Ocean Conservancy coordinates the National Marine Debris Monitoring Program to help determine the sources and changes in marine debris pollution. In Rhode Island, beach cleanups are conducted at 70 sites by over 1,500 volunteers recruited and organized by the Audubon Society of Rhode Island. Data is collected at two sites: Crescent Beach in New Shoreham (Block Island) and Charlestown Beach in Charlestown. In general, land-based items comprise 44% and 55%, general trash comprises around 25% and 29%, and ocean-based items comprise 31% and 16% of the items found, for the beaches respectively.

Since the last section 309 assessment in 2000, the sources and impacts of marine debris in Rhode Island has increased with balloons and cigarette butts being the most notable.

The table below describes the amount and types of trash items found at Crescent Beach from 1996 through 2005. This data is typical of other beaches in the state.

Ocean-based Items		Land-based Items		General	
Gloves	38	**Syringes**	3	**Plastic bags w/ seam < 1m**	586
Pl. sheets ≥ 1 meter	43	**Condoms**	18	**Plastic bags w/ seam ≥ 1m**	116
Light bulbs/tubes	20	**Metal beverage cans**	1001	**Straps (open)**	107
Oil/gas containers	62	**Motor oil containers**	54	**Straps (closed)**	12
Pipe-thread protectors	10	**Balloons**	1645	**Plastic bottles (beverage)**	920
Nets ≥ 5 meshes	214	**Six-pack rings**	83	**Plastic bottles (food)**	237
Traps/pots	213	**Straws**	1035	**Plastic bottles (beach/cleaner)**	87
Fishing Line	102	**Tampons**	153	**Other plastic bottles**	237
Light sticks	12	**Cotton swabs**	2		
Rope ≥ 1 meter	1389				
Salt bags	39				
Fish baskets	28				
Cruiseline logo items	2				
Floats/buoys	652				
Total	**2824**	**Total**	**3994**	**Total**	**2302**

The table below describes the amount and types of trash items found at Charlestown Beach from 1996 through 2005. This data is typical of other beaches in the state.

Ocean-based Items		Land-based Items		General	
Gloves	8	**Syringes**	1	**Plastic bags w/ seam < 1m**	169
Pl. sheets ≥ 1 meter	2	**Condoms**	15	**Plastic bags w/ seam ≥ 1m**	8
Light bulbs/tubes	2	**Metal beverage cans**	86	**Straps (open)**	44
Oil/gas containers	4	**Motor oil containers**	4	**Straps (closed)**	3
Pipe-thread protectors	0	**Balloons**	389	**Plastic bottles (beverage)**	156
Nets ≥ 5 meshes	33	**Six-pack rings**	5	**Plastic bottles (food)**	21
Traps/pots	13	**Straws**	297	**Plastic bottles (beach/cleaner)**	12
Fishing Line	77	**Tampons**	23	**Other plastic bottles**	23
Light sticks	6	**Cotton swabs**	0		
Rope ≥ 1 meter	63				
Salt bags	1				
Fish baskets	1				
Cruiseline logo items	0				
Floats/buoys	22				
Total	**232**	**Total**	**820**	**Total**	**436**

Funding provided by the U.S. Environmental Protection Agency (EPA)

The main sources of marine debris in RI consist of:

- land-based sources/litter; and
- cruise ship/vessel based debris.

The beach clean up data is used as an indicator of the amount of trash collected on a yearly basis. The public education campaign highlights the items found most frequently in an attempt to encourage people to dispose of trash responsibly.

Management Characterization

1. The table below identifies state ocean management programs and initiatives developed since the last assessment.

Program	Status	309$
State / local program requiring recycling	Yes Developing **No**	None
State / local program to reduce littering	Yes **Developing** No	None
State / local program to reduce wasteful packaging	Yes Developing **No**	None
State / local program to manage fishing gear	Yes **Developing** No	None
Marine debris concerns incorporated into harbor, port, marina, and coastal solid waste plans	**Yes** Developing No	None
Education and Outreach Programs	**Yes** Developing No	None

A contractor was hired and proceeded to develop numerous items for Council consideration in developing a Clean Marina Program, modeled after Maryland's successful Clean Marina Program. Working with the Council's cooperative Clean Marina workgroup (consisting of the Marine Trades Association, Save the Bay and DEM), the Council has developed a draft checklist that marinas would use for two purposes in meeting the requirements of a clean marina: the checklist would comprise a regulatory component (that would help the owner ensure such compliance on a regular basis); and, recommended BMPs (that if appropriately addressed, would secure the Clean Marina Certification).

Issues being discussed center around certification "scoring" (e.g., 90%; 80%) of meeting BMPs for the clean marina designations, as well how a field visit should be

conducted at a marina ahead of certification. The Council also sent draft checklists to approximately 12 marinas for "groundtruthing." Preliminary draft sections of the Guidebook have also been developed and are out to public notice.

The Community-based Marine Debris Prevention and Removal Program was implemented in the fall of 2005. The CRMC, in its support of the continuation of this program, granted an assent for debris removal in Narragansett Bay, as well as sent letters of support. The recipient of the assent is Clean The Bay, Inc., a nonprofit organization whose mission, in part, is to improve the safety and attractiveness of Narragansett Bay and the Rhode Island shoreline by removing debris from the shoreline and the navigable waterways of Narragansett Bay. The organization was established by Capt. Alan Wentworth of Seatow Rhode Island and Capt. Ed Hughes of the Recreational Fishing Alliance.

Removal will consist of derelict fishing gear and vessels; monofilament and land-based fishing debris; and abandoned camels once used by the U.S. Navy.

The worthwhile endeavor has been supported by CRMC because it will involve a locally driven, community-based marine debris prevention and removal project that will benefit coastal habitat, waterways and NOAA (National Oceanic and Atmospheric Administration) trust resources.

On November 2, 2005, the CRMC issued an assent for the debris removal program to continue. According to the assent, all work being permitted must be completed on or before November 2, 2008. Stipulations included in the assent call for Clean The Bay to meet with CRMC staff if they encounter difficult removal operations, in order to discuss options with the least impact on coastal resources; no alterations, no stockpiling of materials or disposal of materials and no operation of heavy machinery in an area of beach grass or coastal wetland vegetation; and no discharge or disposal of hazardous wastes or hazardous materials associated with construction machinery on-site on in the waterway.

Clean The Bay has also conducted a debris survey of Narragansett Bay, which includes detailed photographs of marine debris on Prudence, Patience and Hope Islands, in East Providence, Providence, Warwick Cove, Cowesett, East Greenwich, North Kingstown, Jamestown, on Gould and Dyer Islands, in Newport, Portsmouth, Bristol and Tiverton. The marine debris removal, however, will be conducted for all of Narragansett Bay, according to Clean The Bay.

Municipal harbor masters will add information to the debris survey upon completion of the cleanup work. Clean The Bay has applied for grant monies from NOAA 's Community-based Marine Debris Prevention and Removal Project Grant, which, if awarded, would go toward cleanup costs.

Litter Removal throughout RI

The Department of Environmental Management's Litter Program does not have

the financial or personnel resources to be an active participant in this program. Due to this fact, roundtable participants requested DEM to initiate a Litter Task Force to discuss the future of this program. DEM convened a Litter Task Force in June 2003. The purpose of the group is to:

1. Review the extent of the problem
2. Review the current litter legislation, and
3. Review the sources of funding for the program

Currently, there are bills pending regarding the "Promotion of Paper and Reusable Bag Usage" (Senate S 2670 and House H 6991) and the allocation of funds for litter control (Senate S 2670 and House H 6911).

Conclusion

Rhode Island's marine debris problem, although small when compared to other states, should not be dismissed. Plastics remain the leading source of debris along the coast, while derelict docks and old Navy structures (such as camels) are in-water issues.

Rhode Island's recycling and litter reduction programs are implemented by the RIDEM, and are therefore outside of the CRMC's regulatory scope. However, the CRMC, primarily through the Coastal Nonpoint Pollution Control Program (§6217), has been at the forefront of developing and implementing programs which address potential pollution sources at marinas. Similar requirements will be incorporated into the Council's harbor management planning program consistent with the Coastal Nonpoint Pollution Control Program implementation time frame. The requirements are not incorporated into Harbor Management Plans (HMPs) because HMPs concentrate on 1) mooring management; 2) public access; and 3) storm preparedness.

Given the recent private initiative, Clean The Bay, and the high level of cooperation that the Council affords them, marine debris is being addressed adequately from a management perspective. The group reports on progress regularly, so assuming this relationship continues as is, there are no data gaps nor management needs with regard to marine debris.

The Council's previous Assessment ranked marine debris as a medium priority enhancement area. Based on survey responses, existing programs implemented by the DEM, and the CRMC's ongoing efforts with marina operators and in harbor management planning, this area is a low priority for enhancement.

Last Assessment		This Assessment	
High		High	
Medium	X	Medium	
Low		Low	X

APPENDIX A

Surveys mailed: 14 + 16 CRMC staff

Surveys received: 16

ISSUE	PRIORITY High	Medium	Low
Tidal Wetlands Protecting, preserving, improving and creating wetlands through regulatory and non-regulatory programs and innovative techniques	14	2	
Coastal Hazard Areas Directing development and redevelopment away from hazardous areas; preserving and restoring protective functions of natural shoreline features; preventing and minimizing storm threats	10	5	1
Public Access Improving, maintaining and protecting public access through regulatory, planning, and innovative funding techniques	9	6	1
Marine Debris Developing and/or revising programs that reduce the amount of marine debris in the coastal zone	2	6	8
Cumulative and Secondary Impacts Developing, revising and/or enhancing procedures and policies to provide cumulative and secondary impacts control	12	1	2*
Special Area Management Planning Developing and implementing special area management plans for important coastal regions	10	3	3
Ocean Resources Developing and enhancing planning and coordination mechanisms to ensure meaningful state participation in ocean resource development management and decision-making	5	7	4
Energy and Government Facility Siting Enhancing existing procedures and planning processes, and improving policies and standards associate with energy-related and government facilities siting and activities	6	3	7

Aquaculture Enhancing existing procedures and planning processes, and improving policies and standards associated with aquaculture facilities and activities	3	6	7
Other 1. global warming/sea level rise (2) 2. harbor management planning 3. nitrogen removal (2) 4. standards for replacing vegetation lost due to violations			

*one survey was nonresponsive on this issue

APPENDIX B

WORK PLAN (FY2006)

Allin's Cove Coastal Wetland Restoration Project

After almost five years of planning among the U.S. Army Corps of Engineers, CRMC, the Allin's Cove Neighborhood Coalition, the Town of Barrington, members of the U.S. Senate and Congress, and local legislators, onsite construction began in September 2005.

Allin's Cove is an approximately 21-acre region of Narragansett Bay estuary. Salt marsh, mud flats and sub-tidal areas in Allin's Cove were impacted in 1959 by the disposal of dredged material from the Bullock Cove Navigation project into the southern end of the cove. The project aims to restore salt marsh to the cove in the affected area and address the erosion along the western edge of the cove at Byway Road and adjacent marsh land.

Approximately 3.6 acres of Phragmites marsh will be excavated and restored to salt marsh. The excavated silty sediment will be disposed of on-site in a 2-acre upland area. Sandy material will be used to reconfigure the existing south sand spit at the end of the disposal area, which will result in a wider beach. Work will also include realigning the inlet channel to the cove and creating a northern sand spit to the western edge of the marsh near Byway Road. One acre of sand spit will be excavated and relocated to the west to fill the channel and alleviate erosion.

South Shore Habitat Restoration Project

Construction for Phase I of the South Shore project began in the Spring of 2005. This consisted of dredging the sedimentation basins in Ninigret Pond and pumping the sand onto Charlestown Beach. The restoration phase is expected to take two years.

The Project is the result of a resolution adopted by the U.S. Congressional Committee on the Environment and Public Works of the U.S. Senate on August 2, 1995 and funded by Congress in fiscal year 1997. The issues that led to the creation of this Project are well-known in South County: Sedimentation basins, designed to trap sand as it surges through the three breachways, have not been adequately maintained since breachway construction. Tidal sand deltas have formed inside the breachways. The shifting sand has killed aquatic vegetation that once sustained fertile fish and shellfish breeding areas. The purpose of the congressional resolution was to determine the need for improved flood control, frontal erosion, coastal storm damage reduction, and watershed, stream and ecosystem habitat viability in the area from Watch Hill (Westerly) Rhode Island to Narragansett, Rhode Island. The federal sponsor for the project is the

U.S. Army Corps of Engineers (ACOE).

APPENDIX C

Habitat Restoration Team Adoption Date: November 6, 2002

CRMC Adoption Date: November 26, 2002

As directed by RIGL §46-23.1-5, the following is the state's Strategy for estuarine and coastal habitat restoration.

State Estuary and Coastal Habitat Restoration Strategy

The following is a strategy ratified and adopted by the Rhode Island Habitat Restoration Team (i.e. Technical Advisory Committee) pursuant to the Coastal and Estuary Habitat Restoration Program and Trust Fund. The Trust Fund mandates that a plan be established with "comprehensive public, agency, legislative and stakeholder participation." (RIGL § 46-23.1-5).

In so doing, the Habitat Restoration Team (comprised of public, agency, academic, legislative, and stakeholder participation) developed a plan that incorporates the following elements:

A. Description of Rhode Island's Coastal and Estuarine Habitats
   1. **Seagrass**
   2. **Salt Marshes**
   3. **River Systems**

B. Restoration Goals

C. Inventory of Coastal and Estuarine Projects
   1. **Projects funded in FY03, FY04, and solicited in FY05**
   2. **Projected comprehensive budget**
   3. **Identification of funding sources**

D. Criteria for Project Evaluation

E. Application Process
   1. **Step 1: Pre-proposal**
   2. **Step 2: Final Application**

According to the plan, habitat restoration grant monies are dispersed in accordance with RIGL § 46-23.1-5(2) which allocates funding for design, planning, construction or monitoring. Eligible applicants include cities and towns; any committee,

board, or commission chartered by a city or town; nonprofit corporations; civic groups, educational institutions; and state agencies.

A. Description of Rhode Island's Coastal and Estuarine Habitat

Rhode Island is home to an array of coastal habitats, including salt marshes, seagrass beds, and river systems. These habitats support a wide variety of fish and wildlife, contribute greatly to the state's biological integrity and diversity, and help support the state's economy: 75 million dollars in commercial fishery landings; a recreational fishery valued at 150 million dollars; and a tourism and outdoor recreation industry valued at two billion dollars on Narragansett Bay alone.

Despite their exceptional importance and value, Rhode Island's coastal habitats have suffered from several hundred years of human impacts – development activities that have destroyed or degraded many habitats. Salt marshes have been diked, ditched, and filled. More than 500 dams have been built on our rivers. Seagrass beds have succumbed to coastal development and declines in water quality.

In recent decades, technologies have emerged to restore productivity to degraded or destroyed coastal habitats. Scientists, engineers, and community groups have begun working with federal, state and local governments to restore salt marshes, re-establish seagrass beds, and restore fish passage to rivers.

1. Seagrass

Rhode Island's primary seagrass is eelgrass. Eelgrass provides many ecologically valuable functions. It produces organic material that becomes part of the marine food web; helps cycle nutrients; stabilizes marine sediments; and provides important habitat.

Many species of fish and wildlife depend on eelgrass. Eelgrass beds provide protection for bay scallops, quahogs, blue crabs and lobsters. Tautog and other fish lay their eggs on the surface of eelgrass leaves, and young starfish, snails, mussels, and other creatures attach themselves to the plant. Waterfowl such as brant feed on eelgrass. Studies in New England have documented the occurrence of 40 species of fish and 9 species of invertebrates in eelgrass beds.

As new growth replaces older eelgrass leaves, the dead leaves decay, becoming a valuable source of organic matter for microorganisms at the base of the food chain (NOAA Damage Assessment and Restoration Program, 2001). Eelgrass reduces shoreline erosion caused by storms and wave energetics thus protecting adjacent coastal properties. Eelgrass meadows can stabilize sediments and filter nutrients from the water column. Eelgrass also provides a unique habitat for recreational SCUBA divers and snorklers to explore (Chesapeake Bay Program, 2000).

2. Salt Marshes

Rhode Island salt marshes are found along the shores of salt ponds, the Narragansett Bay estuary, small embayments (such as Allin's Cove in Barrington), and estuarine rivers (such as the Narrow River estuary). Our salt marshes provide nursery grounds and foraging habitat for hundreds of species of fish, shellfish, birds, and mammals. Fish of all sizes, from mummichogs to striped bass, hunt in creeks and ponds. Quahogs and oysters live beneath the surface, while mussels, fiddler crabs, and snails occupy intertidal areas. Many kinds of birds visit the marsh to feed on the fish and invertebrates: osprey and herons, ducks of all sorts, and mosquito-eating sparrows that nest in the marsh. In addition to their habitat value, salt marshes serve as natural pollution treatment systems by filtering out pollutants before they reach our coastal waters. The location of salt marshes between our developed coastal communities and the waters of the state also provides a buffer during storms and flooding.

Seventy-five percent of commercial fish species depend on estuaries for their primary habitat, spawning grounds, and nursery areas. In Rhode Island, the role that salt marshes play in our economy is evidenced by our 75 million dollar commercial fishery and a recreational fishery valued at 150 million dollars. The sweeping vistas afforded by the low lying salt marsh landscape contribute immeasurably to the beauty and serenity of Rhode Island's coastline, as well as our tourism and outdoor recreation industry, which is valued at 2 billion dollars on Narragansett Bay alone.

3. River Systems

Anadromous fish runs in Rhode Island occur in rivers, streams, and adjacent areas that drain into coastal ponds, Narragansett Bay, and Block Island Sound. These systems are used by migratory fish to feed and reproduce. River herring, Atlantic salmon, rainbow smelt, sturgeon, and American shad depend on passage upstream for survival. These anadromous fish spawn in fresh water, and mature and spend most of their lives in salt water. Conversely, American eels are catadromous fish, living in lakes and ponds as adults. They migrate downstream and eventually far out into the Atlantic, where they spawn and die in the Sargasso Sea. Their newly born young, less than an inch long, travel on ocean currents back to Rhode Island's rivers and streams.

Many of Rhode Island's rivers are blocked or obstructed by dams, weirs, tide gates, and other water-control structures. In addition to unobstructed passage through the water, migratory fish need healthy riparian areas whose vegetation provides cover, bank stabilization, and temperature regulation. Riparian vegetation also provides detritus (leaf litter, wood, etc.), which forms the base of the riverine food chain. Recreational and commercial fisheries benefit when river corridors remain healthy and passable to migratory fish (Save the Sound, Inc. 1998).

B. Restoration Goals

Habitat restoration is necessary for a variety of reasons. Habitat restoration is being used to reintroduce locally extirpated rare plant species and to create habitat for threatened and endangered wildlife. The restoration of wetlands and riparian areas is

helping to reverse long-term trends in habitat loss, which has occurred over the last century. Numerous small and large-scale projects are underway to restore the natural hydrology, soils and vegetation to habitats around Rhode Island.

Some goals of restoration may include, but are not limited to:

- The re-establishment of habitat structure, be it chemical, biological, or physical. This may include reestablishing or maintaining hydrology, whether by reestablishing river or tidal flow, restoring flood regimes, or re-establishing topography;
- Control of exotic, non-native, or invasive species of plants or animals;
- Re-vegetation through native plantings or natural succession;
- Removal of dams or construction of fish ladders to provide passage for spawning or migrating fish; and
- Controlling, reducing, or eliminating other specific adverse impacts such as controlling polluted runoff.

B. Inventory of Coastal and Estuarine Projects

Projects funded in FY03

PROJECT NAME	PROJECT LOCATION	AMOUNT REQUESTED/ GRANTED	PROJECT TOTAL	OTHER FUNDING
1. Lonsdale Drive-In Wetlands Restoration Project	Lincoln, RI	$152,962.85	$2.7 million	65/35 match; $30,000+/- (Corp. Wetlands); DEM; US Fish & Wildlife
2. Explore the Bay/Field's Point Marsh Restoration Project	Providence, RI	$24,323.45	$408,658	NOAA Restore America's Estuaries: $96,814; NRCS: $61,000 (WHIP); grants: $215,572; and in-kind services: $10,272
3. Narragansett Bay Seagrass Restoration	Narragansett Bay	$29,096.45	$151,027 (STB transplants: $142,327 and G&T Environmental: $8,700)	NOAA: $59,318; Ida Ballou Littlefield Memorial Trust: $5,000; PADI Foundation: $1,370; and in-kind match: $54,866
4. Stillhouse Cove Salt Marsh Restoration Project	Cranston, RI	$7,323.45	$19,038	USDA/NRCS: $14,279(WHIP)
5. Palmer Avenue Salt Marsh Restoration Project	Warren, RI	$14,323.45	$40,000	USDA/NRCS: $10,050.75 (WHIP); RI Aquafund: $6,400
6. Mussachuck Creek Salt Marsh and Anadromous Fish Habitat Restoration*	Barrington, RI	$9,323.45	$100,000	80/20 fed match; NOAA (Fish America): $30,000; USDA/NRCS (WHIP): $65,000; and Save The Bay: grant management and monitoring
7. Napatree Dunes Restoration	Westerly, RI	$6,323.45	$7,000	Partner with Watch Hill Fire District
8. Habitat Restoration Issue (#6) of Narragansett Bay Journal	STATEWIDE	$6,323.45		

***self regulating tide gate only**

Projects funded in FY04			
Project Name	**Amt Requested**	**Matching Funds**	**Amt Granted**
Walker Farm Salt Marsh Restoration	$30,000	$183,900	$30,000
Factory Brook Fishway	$35,000	$85,500 (including inkind)	$35,000
RI Coastal Wetlands Inventory	$32,500	$97,500 (including inkind)	$14,725
Mapping Submerged Aquatic Vegetation in Narragansett Bay	$50,000	$57,603	$50,000
Kickemuit Reservior Fish Ladder	$50,000	$261,000	$40,187
Town Pond (Boyd's Marsh) Salt Marsh Restoration	$80,088	$3,405,912	$80,088

Projects funded in FY05

Project Name	Amount requested	Match	Total
1. Wakefield Fishway Slide Gate	$10,000	$17,000	$27,000
2. Gilbert Stuart Fish Barrier	$10,000	$13,000	$23,000
3. Rising Sun Mill Fish Passage	$37,500	$285,500	$346,075
4. Woonasquatucket River: Dyerville Dam	$32,000	$210,500	$242,500
5. Shannock Village Dams Fish Passage Project	$50,000	$59,298	$119,298
6. Pawtuxet River Anadromous Fish Restoration	$50,000	$107,750	$207,750
7. Little Mussachuck Creek Salt Marsh Restoration	$2,562	$23,363	$26,200
8. Rhode Island Wetlands Inventory	$17,775	$65,000	$130,000
9. NWR Invasive Species Control/Wetland Restoration	$20,000	$110,938	$178,438
10. Modifications to Low Ground Pressure Excavator	$10,603	none	$10,603
11. Continuing Support for the RI Habitat Restoration Portal	$9,560	none	$9,560

On-going list of projects (updated 12/2005)

PROJECT NAME	AMOUNT REQUESTED	PROJECT TOTAL	OTHER FUNDING
Omega Dam (Ten Mile River)	$100,000	1.5 million	150,000
Pawtuxet River Fish Run Restoration (permitting, engineering, and construction)	$25,000	150,000	35,000 NOAA/RAE: $25,000 for engin/design
Seagrass Restoration (aquaculture project)	$50,000	300,000	none secured
Gooseneck Cove (**design**/planning)	$50,000	750,000	
Wood/Pawcatuck River (feasibility study)	$50,000	100,000	none
Woonasquatucket River (feasibility study for fish ladders)	$54,350	79,350	
Narragansett Bay SAV Mapping (overflight and photo interpretation; implementing Global Monitoring Protocol)	$49,000	49,000	volunteers to do ground-truthing; lab space; NRCS funding for mapping
Cormorant Point, B.I. (expanding the culvert)	$15,000	40,000	25,000
Water quality and eelgrass restoration in salt ponds (phragmites removal and mosquito control); nitrogen barrier project—Nixon lab	$65,031	65,031	TBD
Phase III of Sachuest Point, Middletown	$40,000 (4 acre restoration); $500,000 (hydrologic analysis & excavation)		
Hamilton fishway on Annaquatucket River/Bissel Cove	$15,000		No match
Bellville Pond (NK) (restoration plan and implementation)	$50,000		
Duck Cove (monitoring for 2 yrs)	$17,000		

Fishway at Factory Brook	$30,000		
Wetlands inventory of degraded or filled wetlands for future wetlands mitigation	$32,500	130,000	ACOE: $65,000

D. Criteria for Project Evaluation

Factors to be taken into account by the Technical Advisory Committee for the purposes of granting monies for estuary and coastal habitat restoration activities, determining the eligibility of an estuary and coastal habitat restoration projects for financial assistance, and in prioritizing the selection of estuary and coastal habitat restoration projects by the Technical Advisory Committee (Rhode Island Habitat Restoration Team) shall include, but need not be limited to:

(1) consistency with the state estuary and coastal habitat restoration strategy, the Narragansett Bay comprehensive conservation and management plan, the state coastal nonpoint pollution control plan, the coastal resources management program, the department of environmental management regulations, the anadromous fish restoration plan, and pertinent elements of the state guide plan;

(2) the proposed timeline of the project (projects slated to begin sooner rather than later will be given greater preference);

(3) the ability of the applicant to provide adequate personnel funding, and authority to carry out and properly maintain the estuary and coastal habitat restoration activity;

(4) the proposed monitoring plan to ensure that short-term and long-term restoration goals are achieved; a final report given back to the TAC outlining project accomplishments;

(5) the effectiveness of any nonpoint source pollution management efforts upstream and the likelihood of re-impairment;

(6) whether the estuary and coastal habitat restoration activity can be shown to improve or replace habitat losses that benefit fish and wildlife resources;

(7) potential water quality improvements;

(8) potential improvements to or replacements of fish and wildlife habitats for species

which are identified as rare or endangered by the Rhode Island Natural History Survey or the federal Endangered Species Act;

(9) the level and extent of collaboration by partners (e.g., municipality, nongovernmental organization, watershed council, federal agency, etc.);

(10) potential direct economic and educational benefits to a community or the state; and

(11) ability of applicant to secure matching funds, whether the funds be NGO, state or federal dollars.

E. Application Process

1. Step 1: Pre-proposals

Send a letter of inquiry:

Megan Higgins, Coastal Policy Analyst

RI Coastal Resources Management Council

Oliver Stedman Government Center

4808 Tower Hill Road, Suite 3

Wakefield, RI 02879

The letter of inquiry shall include: (1) the name of the restoration project, (2) location of the project (town and street address), (3) a budget, indicating amount requested from the program, (4) property ownership information, (5) restoration project manager contact information (phone, email address and mailing address), and (6) organization(s) responsible for the project. All contributing organizations for the project should be listed. If the project is being matched by federal grant or grants, please list grant programs, amounts, and granting agencies.

Request for Pre-proposals
R.I. Coastal and Estuary Habitat Restoration Program and Trust Fund

Background: Rhode Island's coastal habitats provide great benefits to the citizens of the state, serving as nurseries and breeding grounds for fish and shellfish, capturing and filtering pollution, and contributing to the state's economic, community and ecological health. Restoration of seagrass beds, salt marshes, river systems and other coastal habitats has the potential to improve Rhode Island's ecology, quality of life, and public health. The purpose of the R.I. Coastal and Estuary Habitat Restoration Program is twofold: to facilitate design, planning, construction, and monitoring of coastal and estuarine restoration projects by providing grants and technical assistance; and increase awareness about restoration by providing funding for educational outreach opportunities. The program is administered by the R.I. Coastal Resources Management Council with technical support from the R.I. Habitat Restoration Team.

Eligibility: Cities and towns; committees, boards, or commissions charted by a city or town; nonprofit organizations; civic groups; educational institutions; and state agencies. Projects must be located in the state of Rhode Island.

Funding levels: Funding for projects is from an annual account totaling $250,000. Individual awards will generally range from $5,000 to $50,000 per year. Awards will be made for periods of up to two years, pending availability of funds; longer-term projects may reapply in subsequent years.

Match requirements: No match is required; however, proposals that can demonstrate matching funds or in-kind services will have an advantage in the selection process. Applicants are therefore encouraged to detail all federal and non-federal resources contributing toward completion of the project, whether cash or in-kind.

Award Process:

- **October 14, 200X**: Pre-proposals due, outlining potential projects
- November 1, 200X: Program responds to pre-proposals, requests full applications for projects selected for further consideration
- **December 16, 200X**: Full applications due
- January 30, 200X: Notification of awards

To Submit a Pre-Proposal: Send a letter of inquiry *by October 14* to:

Megan Higgins, Coastal Policy Analyst
R.I. Coastal Resources Management Council
Stedman Government Center, Suite 3
4808 Tower Hill Road
Wakefield, RI 02879

Please include: (1) project name; (2) project location (town and street, if any) with map; (3) preliminary budget, indicating amount of request, cash match (if any, indicate source(s) of funds) and in-kind match (if any); (4) property ownership information, if known; (5) project manager contact information (phone, email address and mailing address), and (6) list of organization(s) involved, with brief description of role of each. Letters of support will not be accepted for pre-proposals, but will be considered with final proposals. Questions about this process may be directed to Megan Higgins, mhiggins@crmc.state.ri.us or (401) 783-3370.

2. Step 2: Final Proposals

After the technical advisory committee has evaluated the project and the applicant has been notified that the proposal is considered for funding, the applicant should send a detailed application, as described below. Please print the application in 12-point type on one side of the page only. Each page of the application should include a page number, the date, and the project name. The application should not be bound or stapled; paper clips are acceptable. The application should not exceed a total of nine (9) pages (not including letters of support). Page limits for each section are provided below.

The detailed application shall include the following:

(1) Cover Page (1 page maximum)

The application cover page shall include:(1) project name, (2) project location, with map, (3) project budget, including amount requested from this program, (4) property ownership information, (5) restoration project manager contact information (phone, email address and mailing address), (6) organization(s) responsible for the project, and (7) signature of authorized agent of applicant organization. All contributing organizations (both financial contributions as well as in-kind) for the project should be listed. If the project is being matched by federal funds, please specify amount(s), grant program(s), and granting organization(s).

(2) Text (5 pages maximum)

A description of the project shall include the type of restoration initiative that will take place, the historical impact to the site, the natural resources benefited and impacted (target species), pertinent physical, ecological, biological, cultural/historical, geological and survey data, a site map, aerial or conventional photographs if available, preliminary restoration drawings, maps or engineering plans if available, and any additional information that would assist in making an award. (refer to **Section D: Criteria for Project Evaluation** when describing project)

The text should also include proof of property owner permission for the restoration activity to take place. A list of expected permits and the responsible party for obtaining the permits shall be included. (see http://www.csc.noaa.gov/lcr/rhodeisland for a list of necessary permits).

(3) Budget (1 page maximum)

A detailed budget for the project must be included in the application. See page 10 for a project budget template.

(4) Project Schedule (1 page maximum)

Please provide a projected schedule for the project, including design, construction and

monitoring. Please include, to the extent possible, project elements that are outside the scope of this proposal.

(5) Monitoring Plan (1 page maximum)

A monitoring plan should be included as appropriate. Monitoring (including reference monitoring) is an allowable use of these funds; generally, however, monitoring should constitute a relatively small portion of overall project funding.

Guides to restoration monitoring include:

(a) "Monitoring Salt Marsh Vegetation"

(b) "Monitoring Nekton in Shallow Estuarine Habitats"

(c) "Long-Term Hydrologic Monitoring Protocol for Coastal Ecosystems"

(d) "Field Methods Manual: US Fish and Wildlife Service (Region 5) salt marsh study"

These protocols may be found on the National Park Service Inventory and Monitoring website: http://www.nature.nps.gov/im/monitor/protocoldb.cfm

(6) Letters of Support (no page limit)

A letter of support from the appropriate state and/or federal resource agency is recommended. Letters from other organizations are encouraged.

(7) Submission of Applications

Please send one signed original and two copies of the application to:

Megan Higgins, Coastal Policy Analyst

RI Coastal Resources Management Council

Oliver Stedman Government Center

4808 Tower Hill Road, Suite 3

Wakefield, RI 02879

Please submit applications by mail or in person; faxed applications will not be accepted.

CHECKLIST FOR APPLICANTS

1. Cover Page (1 page maximum)
   - ☐ project name
   - ☐ project location, with map
   - ☐ project budget, including amount requested from this program
   - ☐ property ownership information
   - ☐ restoration project manager contact information (phone, email address and mailing address)
   - ☐ organization(s) responsible for the project
   - ☐ signature of authorized agent of applicant organization
   - ☐ list of all contributing organizations (both financial contributions as well as in-kind)
   - ☐ list of grant amount(s), grant program(s), and granting organization(s).

2. Narrative (5 pages maximum)
   - ☐ type of restoration initiative that will take place
   - ☐ historical impacts to the site (i.e., type and year of human alteration, if known)
   - ☐ the natural resources benefited and impacted (target species and habitat types)
   - ☐ pertinent physical, ecological, biological, cultural/historical, geological and survey data
   - ☐ a site map
   - ☐ aerial or conventional photographs if available
   - ☐ preliminary restoration drawings, maps or engineering plans if available
   - ☐ any additional information that demonstrates the value of the project

3. Budget (1 page maximum)
   - ☐ budget sheet

4. Project Schedule (1 page maximum)
   - ☐ design schedule
   - ☐ construction schedule
   - ☐ monitoring schedule

5. ☐ Monitoring Plan (1 page maximum)

6. ☐ Letter(s) of Support (no page limit)

PROJECT BUDGET TEMPLATE

(to be used as a guide)

PERSONNEL				
STAFF	**TITLE**	**Hours**	**Rate**	**TOTAL**
FRINGE & PAYROLL TAXES @ 15%				
TOTAL PERSONNEL COSTS				
Consultants				
Outreach and Communications				
TOOL	**DESCRIPTION**	**Number**	**COST**	
Equipment and Supplies				
Travel			0.25	
Boat Usage				
IN-KIND SUPPORT				
CONTRIBUTOR(S) (volunteers, etc.)	**DESCRIPTION**		**C0ST**	
OVERHEAD at 10%	Rent, Utilities, Heat			
TOTAL				
Project Manager Signature:				

APPENDIX D

46-23-6(E) Right-of-ways. 1) The council shall be responsible for the designation of all public rights-of-way to the tidal water areas of the state, and shall carry on a continuing discovery of appropriate public rights-of-way to the tidal water areas of the state.

2) The council shall maintain a complete file of all official documents relating to the legal status of all public rights-of-way to the tidal water areas of the state.

3) The council shall, subject to the provisions of chapter 6 of title 37, as amended, have the power to designate for acquisition and development by the department of environmental management land for tidal rights-of-way parking facilities and other council related purposes.

Further, the council shall have the power to develop and prescribe a standard sign to be used by the cities and towns to mark designated rights-of-way.

4) In conjunction therewith every state department controlling state owned land close to or adjacent to discovered rights-of-way are authorized to set out such land, or so much thereof as may be deemed necessary for public parking.

5) No such use of land for public parking shall conflict with existing or intended use of such land, and no improvement shall be undertaken by any state agency until detailed plans have been submitted to and approved by the governing body of the local municipality.

6) In designating rights-of-way the council shall consider the following matters in making its designation:

a) Land evidence records;
b) The exercise of domain over the parcel such as maintenance, construction or upkeep;
c) The payment of taxes;
d) The creation of a dedication;

e) Public use;

f) Any other public record or historical evidence such as maps, street indexes;

g) Other evidence as set out in (section) 42-35-10.

7) A determination by the council that a parcel is a right-of-way shall be decided by substantial evidence.

8) The council shall be notified whenever by the judgement of the governing body of a coastal municipality, a public right-of-way to tidal water areas located in such municipality has ceased to be useful to the public, and such governing body proposes an order of abandonment of such public right-of-way. Said notice shall be given not less than sixty (60) days prior to the date of such abandonment.

46-23-6.2 Abandonment of Right-of-ways. No city or town shall abandon a right-of-way designated as such by the coastal resources management council unless the council approved the abandonment.

46-23-7 Violations. (a) The executive director shall have the power to order any person to cease and desist or to remedy any violation of any provisions of this chapter, or any rule, regulation, assent, order or decision of the council whenever the executive director shall have reasonable grounds to believe that such violation has occurred.

Council staff, conservation officers and state and municipal police shall be empowered to issue written cease and desist orders in any instance where activity is being conducted which constitutes a violation of any provisions of this chapter, or any rule, regulation, assent, order or decision of the council.

Conservation officers, council staff and state and municipal police shall have authority to apply to a court of competent jurisdiction for a warrant to enter on private land to investigate possible violations of this chapter; provided that they have reasonable grounds to believe that such violation has been committed, is being committed or is about to be committed.

(b) Any order or notice issued pursuant to subsection (a) shall be eligible for recordation under chapter 13 of title 34 of the general laws and shall be recorded in the land evidence records in the city/town wherein the property subject to the order is located, and any subsequent transferee of such property shall be responsible for complying with the requirements of the order and notice.

(c) The coastal resources management council shall discharge of record any notice filed pursuant to subsection (b) within thirty (30) days after the violation has been remedied.

46-23-7.1 Administrative Penalties. Any person who violates, or refuses or fails to obey, any notice or order issued pursuant to subsection (a) or section 46-23-7 of this chapter, or any assent, order or decision of the council, may be assessed an administrative penalty by the chairman or executive director in accordance with the following:

(i) The chairperson or executive director are authorized to assess an administrative penalty of not more than one thousand dollars ($1,000.00) for each violation of this section, and are authorized to assess additional penalties of not more than one hundred dollars ($100.00) for each day during which this violation continues after receipt of a cease and desist order from the council pursuant to paragraph (a) of section 46-23-7 of this chapter but in no event shall such penalties in an aggregate exceed five thousand ($5,000.00) dollars. Prior to the assessment of a penalty under this subsection, the property owner or person committing the violation shall be notified by certified mail or personal service that a penalty is being assessed. The notice shall include a reference to the section of the law, rule, regulation, assent, order or permit condition the violation; a statement of the amount of the administrative penalty assessed and a statement of the party's right to an administrative hearing.

(ii) The party shall have twenty-one (21) days from receipt of the notice within which to deliver to the council a written request for a hearing. This request shall specify in detail the statements contested by the party. If no hearing is requested, then after the expiration of the twenty-one (21) day period the council shall issue a final order assessing the penalty specified in the notice. The penalty is due when the final order is issued. If the party shall request a hearing, any additional daily penalty shall not commence to accrue until the council issues a final order.

(iii) If a violation is found to have occurred, the council may issue a final order assessing not more than the amount of the penalty specified in the notice. The penalty is due when the final order is issued.

(iv) The party may appeal the final order of the council to the superior court which shall hear the matter de novo.

46-23-7.2 Proceedings for Enforcement. The superior court shall have jurisdiction to enforce the provisions of this chapter, the coastal resource management program, or any rule, regulation, assent or order issued pursuant thereto. Proceedings under this section may follow the course of equity, and shall be instituted and prosecuted in the name of and at the direction of the chairman and council by the attorney general or counsel designated by the council. Proceedings provided in this section shall be in addition to, and may be utilized in lieu of, other administrative or judicial proceedings authorized by this chapter.

46-23-7.3 Criminal Penalties. Any person who knowingly violates any provision of this chapter, the coastal resources management program, or any rule, regulation, assent or order shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not more than five hundred dollars ($500.00) or by imprisonment for not more than three (3) months or both; and each day such violation is continued or repeated shall be deemed a separate offence.

46-23-7.4 Penalty for Blocking or Posting of Rights-of-way. Any person who shall post or block

any tidal water public right-of-way, as designated by the council, shall be punished by a fine not exceeding five hundred dollars ($500.00) or by imprisonment for not more than three (3) months or both; and each day such posting or blocking continues or is repeated shall be deemed a separate offense. The chairman of the council, through council's legal counsel or the attorney general may apply to any court of competent jurisdiction for an

injunction to prevent the unlawful posting or blocking of any tidal water public right-of-way.

46-23-7.5 Prosecution of Criminal Violations. The chairman any anyone designated by the chairperson, without being required to enter into any recognizance or to give surety for cost, may institute such proceedings in the name of the state. It shall be the duty of the attorney general and/or the solicitor of the city or town in which the alleged violation has occurred to conduct the prosecution of all such proceedings. The chairman may delegate his authority to bring prosecution by complaint and warrant to any law enforcement officials authorized by law to bring complaints for the issuance of search or arrest warrants pursuant to chapters 5 and 6 of title 12.

46-23-17 Annual Progress Report on Right-of-Ways. Within ninety (90) days after

the end of each fiscal year, the council shall submit a written progress report on the development of public right-of-ways to the tidal water areas of the state to the state planning council, the department of environmental management, and the joint committee on the environment, for review, evaluation and recommendation of the program's suitability, relevance to the recreation element of the state guide plan and impact on the natural resources of the state. The report shall also provide detailed records of expenditures and a proposed schedule of future projects.

Section 335.
Protection and Enhancement of Public Access to the Shore

A. Definitions

1. Public access to the shore is a general term used to describe the ways and means by which the public may legally reach and enjoy the coastal areas and resources of the State.
2. Public right-of-way is a parcel of land over which the public has a right to access tidal waters.

B. Findings

1. In accordance with Article 1, Section 17 of the Constitution of the State of Rhode Island, the public has the legal right to use and enjoy Rhode Island's coastal resources.
2. As trustee of Rhode Island's coastal resources and in accordance with state and federal statutory mandates, the Council has a responsibility to ensure that public access to the shore is protected, maintained and, where possible, enhanced for the benefit of all.
3. Tourism and tourism-related industries, recreational boating and fishing, and commercial fishing contribute significantly to the economy of Rhode Island and are dependent upon adequate access to the shore throughout the State.
4. The scenic qualities of the Rhode Island coast are one of the State's greatest natural assets and economic resources. The ability to view the coast and shoreline areas without obstruction by structures is an integral component of public access to the shore in Rhode Island.
5. A wide variety of opportunities for public access exist in Rhode Island. However, poor site conditions exist at many access sites and many sites are not accessible to individuals with disabilities.
6. Well-designed and maintained public access sites and improvements to existing public access sites can enhance the value of adjacent properties. In addition, properly designed, maintained and marked public access facilities, including adequate parking areas, can reduce the pressures for use of or infringement upon adjacent properties.

7. The Council recognizes that, due to public safety, security or environmental considerations, certain sites may not be appropriate for physical access.
8. The placement of structures, such as seawalls and rip rap, in or along the shore may alter shoreline processes and reduce the amount of public access available.
9. Certain activities which require the private use of public trust resources to the exclusion of other public uses necessarily impact public access. In general, these activities include:
    a. Commercial and industrial development and redevelopment projects, as defined in section 300.3.
    b. New and significant expansions to marinas, as defined in section 300.4.
    c. Activities which involve the filling of tidal waters, as defined in section 300.10, other than those considered as maintenance, as defined in section 300.7.

C. Policies

1. It is the Council's policy to protect, maintain and, where possible, enhance public access to and along the shore for the benefit of all Rhode Islanders.
2. It is the Council's policy to require applicants to provide, where appropriate, access of a similar type and level to that which is being impacted as the result of a proposed activity or development project.
3. Due to their likelihood of impacting public access and/or the public's use and enjoyment of Rhode Island's public trust resources, it is the Council's policy to require that applications for the following activities include a public access plan:
    a. Commercial and industrial development and redevelopment projects, as defined in section 300.3.
    b. New and significant expansions to marinas, as defined in section 300.4.
    c. Activities which involve the filling of tidal waters, as defined in section 300.10, other than those considered as maintenance, as defined in section 300.7.
4. In accordance with Section 120, a variance from this policy may be granted if an applicant can demonstrate that no significant public access impacts will occur as a result of the proposed project.
5. Publicly funded beach nourishment projects shall contain a public access component.
6. In accordance with R.I.G.L. 32-6-5(c), limited liability applies when the CRMC stipulates public access as a permit condition and when the Council designates a public right-of-way to the shore.

D. General Guidelines

1. Any public access impacts associated with a proposed project should be avoided and minimized to the maximum extent possible.
2. Any public access created to compensate for proposed project impacts should be of a type and level similar to that which will be impacted.

3. In cases where access cannot practically be provided onsite, due to safety, security, environmental or other considerations, the Council may permit access be provided offsite.
4. All structural shoreline protection facilities should be designed and constructed in a manner which does not reasonably interfere with the public's right to pass and repass along the shore.

E. Guidelines for the Development of Public Access Plans

1. The Council recognizes that public access plans should be developed based on the uniqueness of each site and encourages applicants to consult with staff early in the planning process.
2. Public access plans should provide for a level of access directly proportional to, and a type of access similar to, that which will be impacted by the proposed project.
3. In cases where access of a similar type and level can not be provided onsite, the Council will consider offsite alternatives. Applicants should consult with staff and municipal officials when considering offsite alternatives.
4. All public access plans should be consistent with the Americans with Disabilities Act of 1990.
5. All public access plans should provide for long-term maintenance.
6. When developing public access plans, applicants may incorporate the following examples:
    a. Physical access: the ability to reach the shoreline from upland areas via perpendicular access points such as rights-of-way, boat launch ramps, and fishing piers; and, the ability to pass and repass laterally along the shore.
    b. Visual access: the ability to view the coast and shoreline areas without obstruction by structures. Visual access can be provided or enhanced through the provision of viewing platforms, observatories, scenic drives, and innovative architectural designs.
    c. Interpretive access: the provision of signage, plaques, or other techniques to educate the public about the historical, ecological, economic, cultural or other significant aspects of a coastal site.

LEGISLATION, 1994 Session (Passed, awaiting Governor's signature)

SECTION 1. Title 46 of the General Laws entitled "Waters and Navigation" is hereby amended by adding thereto the following chapter, 23, entitled "Coastal Resources Management Council:"

Chapter 46-23.1 TIDAL SHORELANDS

46-23.1-1. Legislative findings. -- (a) The general assembly finds that the ocean and estuarine tidal shorelands of the state are among the most valuable resources the state has.

The tidal shorelands provide a recreational resources of great importance to Rhode Island and its citizens and this makes a significant contribution to the economic well-being of the state. The general assembly finds that the ocean and estuarine tidal shorelands are public trust resources of statewide significance and have been customarily freely used and enjoyed by people throughout the state as a part of their common heritage protected under article 1, section 16 and 17 of the constitution of Rhode Island.

Chapter 46-23-6 POWERS AND DUTIES

(F) Creation of programs - Administration - Purpose - Definitions. - (1) There is created the Public Access Protection Program, to be administered by the Coastal Resources Management Council for the purpose of protecting shoreline access along the Block Island and Rhode Island Sound and estuarine waters. The CRMC shall further have the authority to establish and adopt appropriate policies and standards to administer this program.

(2) The CRMC shall carry out a program to protect public access along the shore as guaranteed by article 1, section 17, of the Rhode Island constitution. The designation and operation of this public access protection program shall include the policies and standards to be adopted by the CRMC for the protection of public access along the shore.

(3) To the maximum extent possible, this program shall be coordinated with state and local management and recreational programs and carried out in cooperation with local governments and state agencies.

(4) The coastal resources management council, or other authorized entity, may enforce the provisions of this section pursuant to sections 46-23-7 through 46-23-7.5.

(5) Landowners upon whose property lateral access is traversed shall be responsible only for gross negligence or willful misconduct.

RICRMP Guidelines for the Development of Municipal Harbor Management Plans which details that all Final Harbor Management Plans must consider "...public access to and along the shoreline and tidal waters of the state, including...CRMC designated right-of-ways."

APPENDIX E

A. SHORELINE ACCESS

1. RIGHTS-OF-WAYS

a) Discovery and Designation

Goal: To discover, recognize and formally establish the legal status of existing public rights-of-way to the shore, to promote their availability for use by the public in cooperation with a municipality, and to protect them from interference or loss.

Policy: It shall be the policy of the CRMC to undertake the discovery and designation of traditional and existing public rights-of-way to the shore through all legal methods and approaches available to it.

Authorities: GLRI 46-23-6(E) et seq: Rights-of-way. 1) The council shall be responsible for the designation of all public rights-of-way to the tidal water areas of the state, and shall carry on a continuing discovery of appropriate public rights-of-way to the tidal water areas of the state.

RICRMP: Harbor Management Planning Section 300.15 The Council continues to provide technical assistance to coastal municipalities in developing local harbor management plans (HMPs). All approved HMPs have an access element that identifies potential right-of-ways to the shore, which the Council uses as a basis in its work for determining public ROWs.

b) Enforcement

Goal: Where physical conditions allow, to insure that designated public rights-of-way are kept clear and available for use by the public, and that proper action is taken to prevent the unlawful posting, blocking, or abandonment of any public right-of-way, and that current unlawful blocking or posting is removed.

Policy: Where physical conditions allow, it shall be the policy of the CRMC that designated public rights-of-way to the shore be kept open and clear for the use of the public, and that the CRMC, in cooperation with a municipality, shall pursue all avenues available to it to prevent or remedy the unlawful posting, blocking, or abandonment of any public right-of-way.

Authorities: GLRI 46-23-7 et seq. Violations. (a) The executive director shall have the power to order any person to cease and desist or to remedy any violation of any provisions of this chapter, or any rule, regulation, assent, order or decision of the council whenever he/she shall have reasonable grounds to believe that such violation has occurred.

46-23-7.4 Penalty of Blocking or Posting of Right-of-way. Any person who shall post or block any tidal water, public right-of-way, as designated by the council, shall be punished by a fine not exceeding five hundred dollars ($500.00) or by imprisonment for not more than three (3) months or both; and each day such posting or blocking continues or is repeated shall be deemed a separate offense. The chairperson of the council, through council's legal counsel or the attorney general may apply to any court of competent jurisdiction for an

injunction to prevent the unlawful posting or blocking of any tidal water public right-of-way.

46-23-6.2 Abandonment of right-of-ways. No city of town shall abandon a right-of-way designated as such by the coastal resources management council unless the council approved the abandonment.

46-23-6(E)(8) Right-of-ways. The council shall be notified whenever by the judgement of the governing body of a coastal municipality a public right-of-way to tidal water areas located in such municipality has ceased to be useful to the public, and such governing body proposes an order of abandonment of such public right-of-way. Said notice shall be given not less than sixty (60) days prior to the date of such abandonment.

c) Development and Maintenance

Goal: To ensure that all legally designated CRMC public rights-of-way to the shore are developed and maintained as unobstructed access points that further ensure and enhance the viability of shoreside water access.

Policy: It shall be the policy of the CRMC that all formally recognized and established public rights-of-way to the shore be developed and maintained as unobstructed access points that further ensure and enhance the viability of shoreside access to the waters of the state. The CRMC will solicit the assistance and cooperation of the coastal municipalities in implementing this policy. Other parties interested in sponsoring a CRMC designated ROW through the agency's Adopt-an-Access program will also be solicited to participate in the development and maintenance of ROWs

Authorities: GLRI 32-6-5(c): Limited liability applies when the CRMC stipulates public access as a condition of permit or on a CRMC designated right-of-way. Through its permit process therefore, the Council has the ability to stipulate conditions for the provision of public access.

2. RIGHTS-OF-WAYS and OTHER PUBLIC SHORELINE ACCESS

a) Existing Sites

Goal: To preserve all existing shoreline access sites as such and to work with municipalities to provide for the maintenance of these sites.

Policy: It shall be the policy of the CRMC to preserve existing shoreline access sites and develop mechanisms which provide for their maintenance.

Authorities: RICRMP Section 300.15: Municipal Harbor Regulations, and the Guidelines for the Development of Municipal Harbor Management Plans. The Council continues to provide technical assistance to coastal municipalities in developing local harbor management plans (HMPs). All approved HMPs have an access element that identifies potential right-of-ways to the shore and directs, where appropriate, various town departments to development and maintain such sites.

GLRI 46-23-6.2 Abandonment of right-of-ways. No city of town shall abandon a right-of-way designated as such by the coastal resources management council

unless the council approved the abandonment.

b) Future Development

Goal: To identify all potential shoreline access sites suitable for development via permit processes.

Policy: It shall be the policy of the CRMC to stipulate the development and implementation of public access plans through approved Assents for certain types of coastal development, and to provide for the preservation and maintenance of the public access provided by such plans.

Authorities: RICRMP Section 335: Protection and Enhancement of Public Access to the Shore sets out definitions of Public Access to the Shore, Findings, Policies and Standards for requiring access and/ or access improvements when proposing activities within the Rhode Island coastal zone. See the appendix for a detailed description of this section.

B. DEMARCATION AND SITE MANAGEMENT

1. DEMARCATION

Goal: To assist municipalities involved the Council's continuous discovery and designation process in securing signage which identifies appropriate access sites as public.

Policy: It shall be the policy of the Council to require that access sites designated by the Council as public be, marked as such.

Authorities: GLRI 46-23-6(E)(3) The council shall, subject to the provisions of chapter 6 of title 37, as amended, have the power to designate for acquisition and development by the department of environmental management land for tidal rights-of-way parking facilities and other council related purposes. Further, the council shall have the power to develop and prescribe a standard sign to be used by the cities and towns to mark designated right-of-ways.

2. SITE MANAGEMENT

Goal: To assist municipalities and others in developing agreements which maintain access sites as such.

Policy: It shall be the policy of the Council to develop agreements with coastal municipalities and others (i.e. CRMC designated ROW "Adopt-an-Access" sponsors) which ensure that marked access sites be maintained for appropriate uses.

Authorities: GLRI 32-6-5(c), limited liability applies when the CRMC stipulates public access as a condition of a permit or via a CRMC designated right-of-way.

C. REPORTING REQUIREMENTS

Goal: To annually produce a progress report on the Council's efforts regarding shoreline access.

Policy: It shall be the policy of the Council to provide a written progress report on the development of public right-of-ways to the tidal water areas of the state

Authority: 46-23-17 Annual Progress Report on Right-of-Ways. Within ninety (90) days after the end of each fiscal year, the council shall submit a written progress report on the development of public right-of-ways to the tidal water areas of the state to the state planning council, the department of environmental management, and the joint committee on the environment, for review, evaluation and recommendation of the program's suitability, relevance to the recreation element of the state guide plan and impact on the natural resources of the state. The report shall also provide detailed records of expenditures and a proposed schedule of future projects.

APPENDIX F

The Rhode Island Aquaculture Initiative

In November 2001, at the 2nd Southern New England Aquaculture Conference it was announced that $1.5 million, secured through the efforts of Senator Jack Reed, had been appropriated for planning and advancement of aquaculture in Rhode Island. The project has been entitled the "Rhode Island Aquaculture Initiative". During 2002 a memorandum of understanding was reached with Rhode Island Sea Grant, Roger Williams University and the University of Rhode Island to oversee the day-to-day management of the grant. A multi-institutional executive committee comprised of Rhode Island state, university, industry, and other aquaculture leaders was formulated to determine priorities for projects to be funded with the $1.5 million that Senator Jack Reed obtained for aquaculture development in Rhode Island. Funds are routed from the National Oceanic and Atmospheric Administration (NOAA) Office of Oceanic and Atmospheric Research to the Rhode Island Sea Grant College Program at the University of Rhode Island (URI) and managed by David Alves, Coastal Resources Management Council (CRMC) state aquaculture initiative coordinator, assisted by Barry Costa-Pierce, Rhode Island Sea Grant director, and Ames Colt, Rhode Island Sea Grant associate director. Rhode Island Sea Grant reports to the NOAA-Sea Grant Project Manager, Jim McVey, in Washington, DC. CRMC has signed a memorandum of understanding with Rhode Island Sea Grant, the University of Rhode Island, and Roger Williams University to manage this project.

RI Sea Grant has built and hosted a web page to encourage all who might be interested to keep abreast of the developments with the initiative. The address is:
http://seagrant.gso.uri.edu/research/rhodyaquaculture/rhodyaquaculture.html

Grants awarded

The Rhode Island Aquaculture Initiative has awarded $600,000 toward aquaculture research and development in the state through a series of multi-year research grants and one-year "mini-grants." The next round of grant proposals will be solicited during the fall of 2004.

Rhode Island Aquaculture Initiative Multi-Year Research Grants

- Peter August, URI natural resources science professor, received $149,983 over three years to enhance the Rhode Island Aquaculture and Fisheries Web page and Internet map server with up-to-date physical, chemical, and biological spatial data.
- Bradford Bourque, of Roger Williams University, Harold Pomeroy, Roger Williams University biology professor, and Something Fishy, Inc. received $125,438 over three years to develop economically and environmentally sustainable land-based culture techniques for at least three species of marine ornamentals.
- Graham Forrester, URI biological sciences associate professor, and Robert Rheault, Spatco, Ltd. President, received $100,028 over two years to evaluate the effects of aquaculture facilities on natural habitats and to describe the habitat values of shellfish aquaculture gear.
- Marta Gomez-Chiarri, URI fisheries, animal, and veterinary science assistant professor, Roxanna Smolowitz, Marine Biological Laboratory researcher, and Tim Scott Roger Williams University Center for Economic and Environmental Development director, received $49,136 over three years to evaluate the presence of a parasite found in wild and farmed northern quahogs in Rhode Island and the potential effect of the disease on Rhode Island's quahog industry.
- Perry Raso, shellfish aquaculturist, and Alicia Thayer, South Kingstown High School teacher, received $82,405 over three years to educate over 1,700 students from Grade 6 through college about shellfish aquaculture and to promote community acceptance of aquaculture. In addition, students will be involved in a cutting-edge model aquaculture facility.
- Tim Scott, Roger Williams University center for Economic and Environmental Development director, received $100,000 over three years to determine whether producing young seed clams in a hatchery and replanting them on public grounds will result in a greater harvest of adult clams in the future or will inadvertently attract predators to a productive bed.

2003 Grants

- Dr. Dale Leavitt, Roger Williams University, and Dr. Marta Gomez-Chiarri, URI, had their proposal to test disease resistant oysters funded.
- Dr. Marta Gomez-Chiarri's proposal to continue the disease survey was funded. This survey was funded by RI DEM in the past, but because of financial and management problems the funding was not renewed. This is a project that rightly should be funded by the state but because of the importance of the survey for resource management decisions RIAI has provided funding.

Rhode Island Aquaculture Initiative Mini-Grants

- Aquaculture Products of Charlestown received $275 to test methods for reducing starfish predation in oyster culture.
- Russell Blank and William Blank of North Kingstown received $3,000 for the purchase of materials and seed to grow bay scallops and soft-shell clams.
- Louis Ricciarelli, Jr. of West Kingston received $3,000 to grow bay scallops to harvestable size in Narragansett Bay, using varying types of cages to determine the best method for grow-out.
- Salt Water Farms, LLC of Wakefield received $3,000 to purchase processing machinery intended to reduce operating costs and accelerate the growth rates of cultured oysters and mussels.
- Spatco, Ltd., of Wakefield, received $2,000 to purchase and test in-water aeration equipment that will substantially reduce ambient noise levels.
- Kenneth Thompson of North Providence received $2,000 to grow surf clams, which have not previously been cultivated in Rhode Island.
- Christopher Warfel of New Shoreham received $1,700 to develop a hybrid wind and solar powered upweller to enable shellfish aquaculturists to site culture operations in remote waters.

2003 Grants

- A cooperative project between the RI Shellfisherman's Assoc. and Save The Bay was funded.
- Purchase/use of a video camera was funded for research use by Moonstone Oysters was funded.

Development of a fish counter by Dale Leavitt at Roger Williams was funded.